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TECHNICAL MANUAL

**ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING**

**MAINTENANCE STATUS DISPLAY AND
RECORDING SYSTEM**

**NAVY MODEL
F/A-18A AND F/A-18B
161353 AND UP**

N68936-01-D-0007

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NUMERICAL INDEX OF EFFECTIVE WORK PACKAGES/PAGES

List of Current Changes

Original 0	1 Jun 86	Change 3	15 Oct 87	Change 6	15 Sep 92	Change 9	1 Oct 00
Change 1	1 Sep 86	Change 4	1 Aug 88	Change 7	15 Jan 93	Change 10	1 Jun 02
Change 2	15 Apr 87	Change 5	15 May 90	Change 8	15 Jan 97		

Only those work packages/pages assigned to the manual are listed in this index. Insert Change 10, dated 1 June 2002. Dispose of superseded work packages/pages. Superseded classified work packages/pages shall be destroyed in accordance with applicable security regulations. If changed pages are issued to a work package, insert the changed pages in the applicable work package. The portion of text affected in a change or revision is indicated by change bars or the change symbol "R" in the outer margin of each column of text. Changes to illustrations are indicated by pointing hands, change bars, or MAJOR CHANGE symbols. Changes to diagrams may be indicated by shaded borders.

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LIST OF TECHNICAL PUBLICATIONS DEFICIENCY REPORTS INCORPORATED**ORGANIZATIONAL MAINTENANCE****TESTING AND TROUBLESHOOTING****MAINTENANCE STATUS DISPLAY AND RECORDING SYSTEM****This WP supersedes TPDR WP, dated 1 October 2000.**

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1. The TPDRs listed below have been incorporated in this issue.

IDENTIFICATION NUMBER/ QA SEQUENCE NUMBER	LOCATION
NONE	

ALPHABETICAL INDEX**ORGANIZATIONAL MAINTENANCE****TESTING AND TROUBLESHOOTING****MAINTENANCE STATUS DISPLAY AND RECORDING SYSTEM**

This WP supersedes WP001 00, dated 15 May 1990.

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INTRODUCTION**ORGANIZATIONAL MAINTENANCE****TESTING AND TROUBLESHOOTING****MAINTENANCE STATUS DISPLAY AND RECORDING SYSTEM**

This WP supersedes WP002 00, dated 1 October 2000.

1. PURPOSE.

2. This manual provides the data required by the technician to do testing and troubleshooting of the system.

3. REQUISITION AND AUTOMATIC DISTRIBUTION OF NAVAIR TECHNICAL MANUALS.

4. Procedures to be used by Naval activities and other Department of Defense activities requiring NAVAIR technical manuals are defined in NAVAIR 00-25-100 and NAVAIRINST 5605.5A. To automatically receive future changes and revisions to NAVAIR technical manuals, an activity must be established on the Automatic Distribution Requirements List (ADRL) maintained by the Naval Air Technical Data and Engineering Service Command (NATEC). To become established on the ADRL, notify your activity central technical publications librarian. If your activity does not have a library, you may establish your automatic distribution by contacting the Commanding Officer, NATEC, Attn: Distribution, NAS North Island, Bldg. 90, P. O. Box 357031, San Diego, CA 92135-7031. Annual reconfirmation of these requirements is necessary to remain on automatic distribution. Please use your NATEC assigned account number whenever referring to automatic distribution requirements.

5. If additional or replacement copies of this manual are required with no attendant changes in the ADRL, they may be ordered by submitting a MILSTRIP requisition in accordance with NAVSUP 485 to Routing Identifier Code "NFZ". MILSTRIP requisitions can be submitted through your supply office, Navy message, or SALTS to DAAS (Defense Automated Address System), or through the DAAS or NAVSUP web sites. For assistance with a MILSTRIP requisition, contact the Naval Inventory Control Point (NAVICP) Publications

and Forms Customer Service at DSN 442-2626 or (215) 697-2626, Monday through Friday, 0700 to 1600 Eastern Time.

6. MANUAL ISSUE DATE.

7. The date on the title page is the copy freeze date. No additions, deletions, or changes are made after the manual issue date except last minute safety of flight or required maintenance changes. Data collected after the manual issue date will be included in later changes or revisions of the manual.

8. EFFECTIVITIES.

9. Effectivity notes on manual title pages, work package title pages, and within a work package indicate the aircraft or software program to which the data applies. If no effectivity note appears on the work package title page, the work package has the same effectivity as shown on the manual title page. The effectivity notes may use:

NOTE

Aircraft with model designator F/A-18B are the same type and model as TF/A-18A.

- a. Type, model, and series
- b. Bureau number (tail number)
- c. Combination of type, model, series, and bureau numbers
- d. Part number or serial number
- e. Technical directive number
- f. Configuration/identification number

10. The table below shows examples of effectiveness notes and their meanings:

Effectivity Note Examples

Effectivity Note	Definition
160777 AND UP	Applicable to all F/A-18A, F/A-18B, F/A-18C and F/A-18D for bureau numbers listed.
F/A-18A, F/A-18B	Applicable to all F/A-18A and F/A-18B.
F/A-18C, F/A-18D	Applicable to all F/A-18C and F/A-18D.
F/A-18A	Applicable to all F/A-18A, but not F/A-18B, F/A-18C and F/A-18D.
F/A-18B	Applicable to all F/A-18B, but not F/A-18A, F/A-18C, and F/A-18D.
F/A-18C	Applicable to all F/A-18C, but not F/A-18A, F/A-18B, and F/A-18D.
F/A-18D	Applicable to all F/A-18D, but not F/A-18A, F/A-18B, and F/A-18C.
F/A-18A, F/A-18C	Applicable to all F/A-18A and F/A-18C, but not to F/A-18B and F/A-18D.
F/A-18B, F/A-18D	Applicable to all F/A-18B and F/A-18D, but not to F/A-18A and F/A-18C.
F/A-18A 160775, 160777 THRU 160782	Only applicable to some bureau numbers of F/A-18A. Not applicable to any F/A-18B, even if an F/A-18B bureau number is within the numbers listed.
F/A-18C 163427, 163430 THRU 163456	Only applicable to some bureau numbers of F/A-18C. Not applicable to any F/A-18D, even if an F/A-18D bureau number is within the numbers listed.
F/A-18B 160784 AND UP	Only applicable to some bureau numbers of F/A-18B. Not applicable to any F/A-18A, even if an F/A-18A bureau number is within the numbers listed.
F/A-18D 163434 THRU 163457	Only applicable to some bureau numbers of F/A-18D. Not applicable to any F/A-18C, even if an F/A-18C bureau number is within the numbers listed.
160775 THRU 160785 BEFORE F/A-18 AFC 772	Applicable to F/A-18A and F/A-18B for bureau numbers listed, before modification by technical directive.

Effectivity Note Examples (Continued)

Effectivity Note	Definition
161213 AND UP; ALSO 160775 THRU 160785 AFTER F/A-18 AFC 772	Applicable to aircraft modified during production; also applicable when affected aircraft have been modified by technical directive.
160775 THRU 160785; WHEN NO. 2 CONTROL PANEL P/N XXXX-X IS INSTALLED	Applicable to F/A-18A and F/A-18B for bureau numbers listed if panel P/N XXXX-X is installed. (Configuration before AVC)
161213 AND UP; ALSO 160775 THRU 160785; WHEN NO. 2 CONTROL PANEL P/N XXXX-Y (AVC-102) IS INSTALLED	Applicable to aircraft modified during production; also applicable to aircraft components modified to the production configuration by technical directive. (Configuration after AVC)
P/N MBEU65101-9, MBEU65101-10 & MBEU65105-3	Applicable to assemblies which are interchangeable between aircraft.
ENGINE NO. 215101 THRU 215109	Applicable to assemblies which are interchangeable between aircraft, but configurations can not be identified by part number.
CONFIG/IDENT NUMBER 84A	The CONFIG/IDENT Number is the program load identification number which identifies the software program loaded in specific programmable units. Refer to A1-F18AC-SCM-000 for CONFIG/IDENT Number tables.

11. TECHNICAL DIRECTIVES.

12. Technical directives are documents which direct the accomplishment, and recording of a retrofit configuration or inspection to delivered aircraft, or aircraft components.

13. **AIRFRAME CHANGE (AFC) AND AIRBORNE TACTICAL SOFTWARE CHANGE (ASC).** Technical directives which change configuration of aircraft structure or equipment installation, i.e. AFC, will list aircraft bureau numbers in effectivity notes and show before and after the AFC. Technical directives which change configuration of operational flight programs (OFP), i.e. ASC, will list the OFP CONFIG/IDENT NUMBER in effectivity notes and show the latest two authorized OFP programs. See AFC and ASC effectivity examples in Effectivity Note Example Table.

14. **AIRCRAFT COMPONENT CHANGES.** Technical directives which change configuration of aircraft components, i.e. AAC, ACC, AVC, AYC, and PPC will list part numbers in the effectivities. See AVC effectivity examples in Effectivity Note Example table.

15. RECORD OF APPLICABLE TECHNICAL DIRECTIVES.

16. The technical directives affecting this manual are listed in the Record of Applicable Technical Directives of each affected work package. Because an ASC directs all aircraft be modified within 30 days, ASC's are not listed. When all affected aircraft are modified, the before configuration is removed from the manual, and the technical directive entry is removed from the Record of Applicable Technical Directives.

17. TECHNICAL PUBLICATIONS DEFICIENCY REPORT (TPDR).

18. The TPDR (OPNAV FORM 4790/66) is the form for reporting errors and suspected omissions in the technical manuals. Reporting procedures are in OPNAVINST 4790.2 SERIES.

19. QUALITY ASSURANCE PROCEDURES.

20. Procedures or parts of procedures which require quality assurance inspection are identified by the letters (QA) after the applicable steps. When (QA) is assigned to a step or a heading which is immediately followed by substeps, the inspection requirement is applicable to all substeps.

21. When doing maintenance in any area, a visual inspection of the area will be made for cracks, corrosion and security of component installation before securing the area for flight.

22. TEST PROCEDURES.

23. Test procedures are done as part of malfunction isolation, during periodic inspection, or when correct system operation is to be verified.

24. Satisfactory completion of test procedures verifies correct system operation. Do steps in sequence. When doing system test procedures, make sure:

a. System Required Components identified in procedure are installed.

b. Related Systems Required identified in procedure are operative.

c. Steps are done in sequence.

d. Results are as shown in Normal Indication column, or do Remedy for Abnormal Indication.

e. Each malfunction is corrected before going to next step by repeating portion of test procedure which failed.

25. TROUBLESHOOTING.

26. **TROUBLESHOOTING PROCEDURES.** These procedures provide a series of steps with a NO-YES column. These steps lead to corrective action for the malfunction. Troubleshooting procedures list the data below for use as an aid when doing procedural steps:

a. Reference to a system schematic.

b. Reference to a component locator.

c. List of support equipment and materials required which will always be used in the procedure. Additional support equipment may be required.

d. An alphabetical list of components which could cause the malfunction.

27. Troubleshooting procedures (logic trees) are referenced from a test procedure Remedy for Abnormal Indication column or from Fault Reporting Manual. Logic trees are written assuming the logic below:

a. If doing a test procedure, all steps testing functions before the failed step had normal indication.

b. For an abnormal indication, only one malfunction exists.

c. All replacement components are ready for installation.

28. **CONTINUITY TESTING.** When doing continuity tests during troubleshooting, the items listed below must be tested, as applicable.

a. Loose electrical connectors and bent, broken, or recessed pins.

b. Continuity between specific pins per procedural step or system schematic.

c. Shorts between conductor and shield.

d. Shorts between conductor and surrounding pins on connectors.

e. Shield continuity per diagrams/system schematics.

29. **TROUBLESHOOTING BEYOND BIT/SYSTEM TESTING.** This is required when any of the conditions listed below exist:

a. Malfunction was not detected by Built-In Test (BIT).

b. Malfunction was not detected by a functional test procedure.

c. When a troubleshooting procedure did not correct the malfunction.

d. When a troubleshooting procedure does not exist.

30. When any of the conditions listed in paragraph 28 exist, troubleshooting procedure/logic must then be determined. Use steps listed below to aid in determining procedure/logic:

a. Use referenced system schematic or select applicable system schematic for malfunction. Use schematic for troubleshooting beyond BIT analysis as listed below:

(1) Analyze interface of system components. Determine logic wiring and/or components which may cause the malfunction. Determine when an interfacing component could cause the malfunction.

(2) When malfunction can be caused by mission computer system signal interface, analyze mission computer system integrated functions and memory inspect suspected Input/Output REF CODES (A1-F18AC-FIM-100).

b. Review VIDS/MAF (OPNAV 4790/60) in Aircraft Discrepancy Book for related malfunctions.

(1) Analyze system/related system maintenance codes reported by Nose Wheelwell Digital Display Indicator.

(2) Determine if aircraft components that have been replaced could cause malfunction.

(3) When a repeat malfunction exists, analyze previous maintenance action completed for the malfunction.

(a) When component replacement is/was done, analyze component history as listed:

1) Determine where component came from.

2) Determine previous history of component (when available).

3) Determine if similar malfunction occurred on another aircraft.

4) Determine if replaced component could be causing existing malfunction.

5) Determine if replacing component again would correct malfunction.

(b) Determine if any rigging or control procedures that have been done could cause the malfunction.

(c) Determine when rigging/boresight procedures should be done to verify system operation for malfunction.

31. TROUBLESHOOTING IMPROVEMENTS.

When a troubleshooting procedure did not correct a malfunction and it is determined that additional or new troubleshooting is required, submit Technical Publications Deficiency Report (TPDR) providing the information listed below:

- a. Fault descriptor for A1-F18()-FRM-000.
- b. Corrective action taken for malfunction.
- c. Logic used to isolate malfunction.

d. Probable changes that could shorten troubleshooting time for malfunction.

32. DIAGRAMS.

33. System schematics are in A1-F18A()()-500 series manuals.

34. ILLUSTRATED PARTS BREAKDOWN.

35. Each illustrated parts breakdown (IPB) in this manual has a parts list and illustration for the requisition, storage, authority for use and identification of parts. The illustration is integrated with, and supports, both the maintenance procedure and the parts list within each work package.

36. **PART NUMBER COLUMN.** Footnote symbols in the part number column are defined following the last part listed in each parts list (also see converted part numbers, this WP).

37. **INDENTION.** The first entry in the description column of each parts list is the figure title. This figure title identifies the parts list with the related maintenance procedure and is shown in the first indent. All parts data required to support the specific maintenance procedure is below the figure title in the second indent.

38. **COMMON NAMES.** The official nomenclature in the description column may not be the name commonly used for an item. If different from the official nomenclature, the common name is shown in parentheses in the description column immediately following the official nomenclature.

39. **COMMERCIAL AND GOVERNMENT ENTITY CODES.** Entity code or manufacturer's name and address are shown in the Description column in parentheses after the nomenclature for the item. These codes are per the Commercial and Government Entity (CAGE) Handbook H4/H8 Series. No code indicates the item is a government standard part.

40. **ATTACHING PARTS.** Attaching parts are identified by (AP) after the nomenclature of the item in the description column. Attaching parts are listed immediately following the part they attach.

41. **SPECIAL HANDLING.** Items requiring special handling such as liquid oxygen components, magnetic control items or on-board oxygen generating system (OBOGS) are identified by the acronym LOX for liquid oxygen, MAG for magnetic control and OXYGEN for on-board oxygen generating system (OBOGS) in the Description column, at the extreme right side.

42. CONVERTED PART NUMBERS. Some part numbers appear in the Part Number column which are different than the manufacturer's part number. These are converted part numbers. The unconverted manufacturer's part number is shown in the Description column following the manufacturer's code. Always use the part number in the Part Number column when ordering parts. If an item is not available under the listing in the Part Number column, it may be ordered using the unconverted part number found in the Description column or by using the number found on the part. Examples of special characters as they may appear in the Part Number and Description columns are shown below:

Part Number Column	Description Column
PORM	± (Plus or Minus)
DEG	° (Degree)
E	e (Lower case letter)
2	II (Roman Numeral)
0.001	.001 (Decimal)

43. SUPERSEDED PARTS. Superseded part numbers have been removed from the Part Number column and placed in the Description column of the superseding part (for example - supersedes 74A582090-1003). This indicates that the superseded part is usable if available through salvage, but should not be requisitioned or made.

44. NEXT HIGHER ASSEMBLY. Next higher assembly (NHA) data is not shown using indentation. Next higher procurable assembly (NHPA) data is shown for part numbers that have a procurable NHA. The NHPA and its assigned Source, Maintenance and Recoverability (SM&R) code are in parentheses as the last entry in the Description column. Requisition the NHPA when the part listed in the Part Number column is not available from supply. The components of assemblies that required disassembly during removal from aircraft, are footnoted in the part number column.

45. UNITS PER ASSEMBLY COLUMN (UPA). This column lists the total number of each part required per assembly or subassembly and are not necessarily the total number used in the end item of equipment. The letters AR (As Required) are used for items such as shims when the requirement may vary.

sarily the total number used in the end item of equipment. The letters AR (As Required) are used for items such as shims when the requirement may vary.

46. USABLE-ON CODES. Applicable usable-on codes are identified on the final sheet of each parts list. No entry in the Use On column indicates parts are applicable to all configurations supported by this parts list.

47. ALTERNATE OR EQUIVALENT PARTS. An asterisk (*), in the Use On column, identifies alternate parts or equivalent parts that are interchangeable. When a letter code is followed by an asterisk in the Use On column, only the parts with the same letter code are interchangeable. An alternate part may be used when preferred part is not available. The asterisk is omitted for the preferred part(s). Equivalent parts are fully interchangeable. No equivalent part is preferred over another. All equivalent parts are identified by asterisks.

48. SOURCE, MAINTENANCE AND RECOVERABILITY (SM&R) CODE COLUMN. The codes used in this column are assigned per NAVAIRINST 4423.3 SERIES and NAVSUPINST 4423.14 SERIES which contain definitions. A dash (-) is shown in the SM&R code column when no code has been assigned. The Aviation Supply Office P2300 series publication is to be used for the most current SM&R Code assignment information if doubt exists as to the validity of any SM&R Code listed in an IPB. Refer to figure 1 for SM&R code explanations.

49. PARTS LIST INDEX MANUAL, A1-F18AC-IPB-450. This manual has a numerical index of part numbers and a reference designation index for use with aircraft organizational maintenance manuals. When reference designations or part numbers are known, the index locates specific maintenance instructions and parts data.

50. NAVY (AN) STANDARD/COMMON NAME NOMENCLATURE.

51. When an item has both Navy (AN) standard and common name nomenclature assigned, the common name nomenclature will be used in text and on illustrations. Full Navy (AN) standard nomenclature will be used in the Illustrated Parts Breakdown (IPB).

SOURCE (D012)				MAINTENANCE			
1st POSITION		2nd POSITION		3rd POSITION		4th POSITION	
P	PROCURE	A	REPLENISH	O	REPLACE OR USE AT ORGANIZATIONAL LEVEL	Z	NO REPAIR (CONSUMABLE)
		B	INSURANCE				
		C	CURE-DATED				
		D	INITIAL	F H G	REPLACE OR USE AT IMA LEVEL	B	RECONDITION BY ADJUSTMENT, CALIBRATION, LUBRICATION, PLATING, ETC.
		E	END ITEM GSE/STOCKED				
		F	GSE/NOT STOCKED				
K	REPAIR KIT COMPONENT	F	ORG/IMA	L	REPLACE OR USE AT SPECIALIZED IMA	O	REPAIR AT ORGANIZATIONAL LEVEL
		D	DEPOT				
		B	BOTH KITS				
M	MANUFACTURE	O	ORGANIZATIONAL	D	REPLACE OR USE AT DEPOT	F H G	REPAIR AT IMA LEVEL
A	ASSEMBLE	F	AFLOAT (INTERMEDIATE)				
		H	ASHORE (INTERMEDIATE)				
		G	BOTH (INTERMEDIATE)				
		D	DEPOT				
X	MISC	A	REQUEST NHA	Z	NOT REQUIRED THIS APPLICATION	D	REPAIR AT SPECIALIZED IMA
		B	OBTAIN FROM SALVAGE OR ONE TIME BUY				
		C	DIAGRAMS-SCHEMATICS, INSTALL DWGS				

RECOVERABILITY (D013C)		SERVICE OPTION (D012A)					
5th POSITION			6th POSITION				
O	REPAIRABLE ITEM. CONDEMN AT ORGANIZATIONAL LEVEL.	1	APPLIES TO ENGINES ONLY. IDENTIFIES THE HIGHEST (1) TO LOWEST (3) LEVEL OF MAINTENANCE WHICH CAN REPLACE (3rd POSITION OF SM&R CODE) THE ITEM.	2			
F H G	REPAIRABLE ITEM. CONDEMN AT INTERMEDIATE LEVEL INDICATED.	4	SAME AS ABOVE. IN ADDITION, ITEM IS A FLR WITH A UNIT COST OF OVER \$5000. THESE CODES ARE NO LONGER ASSIGNED TO NEW, NON-FAMILY RELATED ITEMS.	5			
L	REPAIRABLE ITEM. CONDEMN AT SPECIALIZED INTERMEDIATE LEVEL.	6	NORMALLY PROCURED AND STOCK NUMBERED BUT ORGANIC CAPABILITY EXISTS FOR EMERGENCY STOP-GAP REQUIREMENTS.	E	END-TO-END TEST REQUIRED BY IMA PRIOR TO BCM ACTION.		
D	REPAIRABLE ITEM. CONDEMN AT DEPOT OR CONTRACTOR FACILITY.	J	FLR OR CONSUMABLE ITEM. CHANGE 5th POSITION SM&R CODE TO "D" UNDER PICASICA. NAVAIR APPROVAL REQUIRED.	8	SAME AS "J" ABOVE EXCEPT USED FOR ENGINES ONLY. APPLIES TO 2nd LEVEL OF IMA.		
		9	SAME AS "J" ABOVE EXCEPT USED FOR ENGINES ONLY. APPLIES TO 3rd LEVEL OF IMA.	M	ITEM IS A FLR WITH A UNIT COST OF OVER \$5000. THESE CODES ARE NO LONGER ASSIGNED TO NEW, NON-FAMILY RELATED ITEMS.		
Z	NON-REPAIRABLE ITEM. CONDEMN AT LEVEL IN 3rd POSITION.	N	ASSIGNED TO XB SOURCE CODE AND INDICATES ITEM IS PROCURED LOCALLY. NOT STOCKED IN THE SUPPLY SYSTEM.	T	ASSIGNED TO TRAINING DEVICES WITH SOURCE CODE OF "PD". INDICATES ITEM IS NOT A PROCURABLE SPARE. NSN IS ASSIGNED ONLY TO PERMIT VISIBILITY OF REPAIR PART RELATIONSHIP.		

Figure 1. SM&R Code Explanation

ORGANIZATIONAL MAINTENANCE**TESTING AND TROUBLESHOOTING****SIGNAL DATA RECORDING SET AN/ASM-612****MAINTENANCE STATUS DISPLAY AND RECORDING SYSTEM****Reference Material**

Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000

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Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 90	-	GFE Battery Relay Control Unit; Incorporation of (ECP MDA-F/A-18-00165R1)	1 Aug 88	ECP Cover- age Only
F/A-18 AFC 253	TBD	US Naval Reserves A ⁺ Avionics Upgrade; Incorporation of (ECP MDA-F/A-18-0560R1)	1 Oct 00	TBD
F/A-18 AFC 292	TBD	US Marine Corps Reserves A ⁺ Avionics Upgrade; Incorporation of (ECP MDA-F/A-18-0583)	1 Oct 00	TBD

Table 1. Signal Data Recording Set AN/ASM-612 Test

Procedure	Normal Indication	Remedy for Abnormal Indication
System Required Components		
Digital Display Indicator ID-2150/ASM-612 Magnetic Tape Cartridge MX-9972/ASM-612 Signal Data Converter CV-3493/ASM-612 Signal Data Recorder RO-508/ASM-612		
Related Systems Required		
Avionics Cooling System Electrical Systems Mission Computer System Multipurpose Display Group		
Support Equipment Required		
None		
Materials Required		
None		
NOTE		
If a malfunction occurs during this test, make sure circuit breakers shown in WP004 00 are closed.		
For component locator, refer to WP004 00.		
1. PRELIMINARY.		
a. Observe Digital Display Indicator ID-2150/ASM-612 in nose wheelwell.	WPN SYS FAIL indicator is black (not latched).	Do step 2g.
b. Apply electrical power (A1-F18AC-LMM-000).		
c. On GND PWR control panel assembly, set and hold 1 switch to A ON and 2 switch to B ON for three seconds.	Switches remain on (latched).	1. If switches unlatch in 10 to 30 seconds, apply external cooling air to aircraft (A1-F18AC-LMM-000). 2. If switches do not remain on, troubleshoot (A1-F18AC-FIM-000, WP012 00).

Table 1. Signal Data Recording Set AN/ASM-612 Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
d. On left and right Digital Display Indicators IP-1317() (LDDI and RDDI), set power switch to DAY or NIGHT as required and allow 2-minute warmup. Adjust BRT and CONT controls for best display.	1. LDDI and RDDI have display and center pushbutton switch on bottom row is labeled MENU (fig 1).	1. No display on LDDI, F/A-18A, do table 1 (A1-F18AC-745-200, WP006 00) F/A-18B, do table 1 (A1-F18AC-745-200, WP007 00). 2. No display on RDDI F/A-18A, do table 2 (A1-F18AC-745-200, WP006 00) F/A-18B, do table 2 (A1-F18AC-745-200, WP007 00). 3. If STANDBY is displayed, on LDDI or RDDI, F/A18A, do table 2 (A1-F18AC-745-200, WP004 00), F/A-18B, do table 2 (A1-F18AC-745-200, WP005 00). 4. If BRT or CONT controls do not affect display, replace left or right Digital Display Indicator IP-1317() (A1-F18AC-745-300, WP004 00).
2. PROCEDURE.	2. LDDI has cautions and advisory display.	Replace left Digital Display Indicator IP-1317() (A1-F18AC-745-300, WP004 00).
a. On RDDI, press MENU pushbutton switch.	RDDI has menu display.	Replace right Digital Display Indicator IP-1317() (A1-F18AC-745-300, WP004 00).
b. Press BIT pushbutton switch.	RDDI has BIT control display.	Replace right Digital Display Indicator IP-1317() (A1-F18AC-745-300, WP004 00).
c. Press SDRS pushbutton switch.	RDDI displays SDRS BIT status message IN TEST then GO.	1. If NOT RDY displayed, make sure circuit breakers listed in WP004 00 are closed. If closed, do table 3.

Table 1. Signal Data Recording Set AN/ASM-612 Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>d. On LDDI and RDDI, set power switches to OFF.</p> <p>d1. On F/A-18A 162394 thru 163175 after F/A-18 AFC 253 or F/A-18 AFC 292, press and release MU push-button switch.</p>	<p>RDDI displays MU BIT status message IN TEST. Within 10 seconds, MU BIT status message changes from IN TEST to GO.</p>	<p>2. If RESTART displayed, repeat step c. If RESTART is still displayed, replace Signal Data Recorder RO-508/ASM-612 (A1-F18AC-580-300, WP004 00).</p> <p>3. If DEGD displayed, read and record Digital Display Indicator ID-2150/ASM-612 maintenance codes and see table 2.</p> <p>4. If NO GO displayed, replace Signal Data Recorder RO-508/ASM-612 (A1-F18AC-580-300, WP004 00).</p> <p>1. If NOT RDY displayed, make sure circuit breakers listed in WP004 00 are closed. If closed, do table 1, WP008 00.</p> <p>2. If DEGD or MUX FAIL displayed, replace mission data loader (A1-F18AC-580-300, WP007 00).</p> <p>3. If RESTART displayed, press and release MU push-button switch. If RESTART is still displayed, replace mission data loader (A1-F18AC-580-300, WP007 00).</p>
<p>e. Remove electrical power (A1-F18AC-LMM-000).</p> <p>f. Observe Digital Display Indicator ID-2150/ASM-612 in nose wheelwell.</p> <p>g. Do substeps below:</p> <p>(1) On 163119 AND UP; ALSO 161353 THRU 163118 AFTER F/A-18 AFC 90, if external power is not applied or generators are not operating in nose wheelwell, momentarily set MMP ENABLE/BRCU switch to RESET.</p> <p>(2) On nosewheel DDI, press DDI BIT/RESET switch.</p>	<p>WPN SYS FAIL indicator is black (not latched).</p>	<p>Read and record maintenance codes (A1-F18AC-LMM-000). If maintenance code 030 is displayed, see table 2.</p> <p>Do table 4.</p>
	<p>1. DDI FAIL, FLUIDS LOW, and WPN SYS FAIL indicators are black and white (latched).</p> <p>2. MAINTENANCE CODE display is 888, 682, 341, and then 000 in 30 seconds.</p> <p>3. DDI FAIL, FLUIDS LOW, and WPN SYS FAIL indicators are black (not latched).</p>	<p>Replace Digital Display Indicator ID-2150/ASM-612 (A1-F18AC-580-300, WP005 00).</p> <p>Replace Digital Display Indicator ID-2150/ASM-612 (A1-F18AC-580-300, WP005 00).</p>

Table 2. Maintenance Action For System Maintenance Codes

Maintenance Code	Troubleshooting for Maintenance Codes	
NOTE		
Maintenance Status Display and Recording System Power Schematic (A1-F18AC-580-600, WP005 00) may be used as an aid while doing these procedures.		
For component locator, refer to WP004 00.		
		
To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX 1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX 1 scale.		
NOTE		
The statement "Test for defective aircraft wiring" means to test for the items listed below:		
<ul style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		
4 →	C01	Do the following substeps:
C02	1. Install Mission Data Loader (MDL) (A1-F18AC-580-300, WP007 00) that was installed when C01, C02, C03, C04 or C05 occurred.	
C03	2. On MDL initialization display, press ERASE push-button switch (ERASE boxed).	
C04	3. On MDL initialization display, press HOLD MU push-button switch (HOLD boxed) to clear maintenance code C01.	
C05	4. Remove MDL (A1-F18AC-580-300, WP007 00).	
1 →	008	1. Replace MDL (A1-F18AC-580-300, WP007 00). 2. Do table 2, WP008 00.
1 →	030	1. Replace Signal Data Recorder RO-508/ASM-612 (A1-F18AC-580-300, WP004 00). 2. Troubleshoot MSDRS Terminal Fail 030 Remains, table 5.
159	Replace MDL (A1-F18AC-580-300, WP007 00).	
160	(Associated MU/DSU LOAD CAUTION) Replace MDL (A1-F18AC-580-300, WP007 00).	

Table 2. Maintenance Action For System Maintenance Codes (Continued)

Maintenance Code	Troubleshooting for Maintenance Codes
1 → 165	<p style="text-align: center;"> CAUTION</p> <p>A failed Signal Data Recorder RO-508/ASM-612 can damage the Magnetic Tape Cartridge MX-9972/ASM. The damaged Magnetic Tape Cartridge MX-9972/ASM-612 may cause failure of the Signal Data Recorder RO-508/ASM-612.</p> <ol style="list-style-type: none"> 1. Replace Signal Data Recorder RO-508/ASM-612 and/or Magnetic Tape Cartridge MX-9972/ASM (A1-F18AC-580-300, WP004 00). 2. If malfunction still exists, do the below: <ol style="list-style-type: none"> a. Open door 10L (A1-F18AC-LMM-010). On no. 8 circuit breaker/relay panel assembly open circuit breaker MSDRS. b. Open door 14R (A1-F18AC-LMM-010). Disconnect 85P-F001A and 85P-F001B from Signal Data Recorder RO-508/ASM-612. c. Open door 32R (A1-F18AC-LMM-010). Disconnect 85P-N002B and 85P-N002D from Signal Data Converter CV-3493/ASM-612. d. In nose wheelwell, disconnect 85P-G003A from Digital Display Indicator ID-2150/ASM-612. e. Using time domain reflectometer (A1-F18AC-WRM-000) and table 6, test wiring from: <p style="margin-left: 40px;">85P-F001A pin 109 to 85P-N002D pin 115 (TA310) 85P-F001A pin 110 to 85P-N002D pin 116 (TA311) 85P-F001A pin 111 to 85P-N002D pin 113 (TA312) 85P-F001A pin 112 to 85P-N002D pin 114 (TA313) 85P-F001A pin 113 to 85P-N002D pin 103 (TA314) 85P-F001A pin 114 to 85P-N002D pin 104 (TA315) 85P-F001B pin 8 to 85P-N002B pin 77 (TA316) 85P-F001B pin 9 to 85P-N002B pin 78 (TA317) 85P-F001B pin 20 to 85P-N002B pin 99 (TA322) 85P-F001B pin 21 to 85P-N002B pin 100 (TA323) 85P-F001B pin 8 to 85P-G003A pin 32 (TA316) 85P-F001B pin 9 to 85P-G003A pin 31 (TA317) 85P-F001B pin 20 to 85P-G003A pin 30 (TA322) 85P-F001B pin 21 to 85P-G003A pin 29 (TA323) 85P-F001A pin 105 to 85P-G003A pin 28 (TA376) 85P-F001A pin 106 to 85P-G003A pin 27 (TA377) 85P-F001A pin 107 to 85P-G003A pin 26 (TA378) 85P-F001A pin 108 to 85P-G003A pin 25 (TA379)</p>

Table 2. Maintenance Action For System Maintenance Codes (Continued)

Maintenance Code	Troubleshooting for Maintenance Codes
1 → 166	<ol style="list-style-type: none">1. Replace Magnetic Tape Cartridge MX-9972/ASM-612 (A1-F18AC-580-300, WP004 00).2. If malfunction still exists, replace Signal Data Recorder RO-508/ASM-612 (A1-F18AC-580-300, WP004 00).
167	Do table 7.

Table 2. Maintenance Action For System Maintenance Codes (Continued)

Maintenance Code	Troubleshooting for Maintenance Codes
1 → 168	<p>3 → Do table 1, WP005 00.</p> <p>1. Replace Digital Display Indicator ID-2150/ASM-612 (A1-F18AC-580-300, WP005 00).</p> <p>2. If malfunction still exists, do the below:</p> <ul style="list-style-type: none"> a. In nose wheelwell, disconnect 85P-G003A from Digital Display Indicator ID-2150/ASM-612. b. Open door 14R (A1-F18AC-LMM-010). Disconnect 86P-F001A and 86P-F001B from Signal Data Recorder RO-508/ASM-612. c. Do the substeps below: <p>(1) Using time domain reflectometer (A1-F18AC-WRM-000) and table 6, test wiring from:</p> <p style="margin-left: 40px;">85P-F001A pin 105 to 85P-G003A pin 28 (TA376) 85P-F001A pin 106 to 85P-G003A pin 27 (TA377) 85P-F001A pin 107 to 85P-G003A pin 26 (TA378) 85P-F001A pin 108 to 85P-G003A pin 25 (TA379) 85P-F001B pin 20 to 85P-G003A pin 30 (TA322) 85P-F001B pin 21 to 85P-G003A pin 29 (TA323) 85P-F001B pin 8 to 85P-G003A pin 32 (TA316) 85P-F001B pin 9 to 85P-G003A pin 31 (TA317)</p> <p>(2) Test for defective aircraft wiring (A1-F18A()-WDM-000) from:</p> <p style="margin-left: 40px;">85P-F001A pin 119 to 85P-G003A pin 7 85P-F001A pin 120 to 85P-G003A pin 8</p>
3 → 169	<p>1. With code 926 but without codes 600, 601, 602, 603, 604, or 605; replace Signal Data Converter CV-3493/ASM-612 (A1-F18AC-580-300, WP003 00).</p> <p>2. With codes 600, 601, 602, 603, 604, and 605; replace Signal Data Converter CV-3493/ASM-612 (A1-F18AC-580-300, WP003 00).</p> <p>3. With code 600 and with or without code 926, do table 2, WP005 00.</p> <p>4. With code 601 and with or without code 926, do table 4, WP005 00.</p> <p>5. With code 602 and with or without code 926, do table 5, WP005 00.</p>

Table 2. Maintenance Action For System Maintenance Codes (Continued)

Maintenance Code	Troubleshooting for Maintenance Codes
	<ol style="list-style-type: none">6. With code 603 and with or without code 926, do table 6, WP005 00.7. With code 604 and with or without code 926, do table 7, WP005 00.8. With code 605 and with or without code 926, do table 8, WP005 00.9. Do table 9, WP005 00.
3 ➤ 600	<ol style="list-style-type: none">1. With or without codes 169 and 926, do table 2, WP005 00.2. With codes 169, 601, 602, 603, 604, and 605; replace Signal Data Converter CV-3493/ASM-612 (A1-F18AC-580-300, WP003 00).
3 ➤ 601	<ol style="list-style-type: none">1. With or without codes 169 and 926, do table 4, WP005 00.2. With codes 169, 600, 601, 602, 603, 604, and 605; replace Signal Data Converter CV-3493/ASM-612 (A1-F18AC-580-300, WP003 00).
3 ➤ 602	<ol style="list-style-type: none">1. With or without codes 169 and 926, do table 5, WP005 00.2. With codes 169, 600, 601, 602, 603, 604, and 605; replace Signal Data Converter CV-3493/ASM-612 (A1-F18AC-580-300, WP003 00).
3 ➤ 603	<ol style="list-style-type: none">1. With or without codes 169 and 926, do table 6, WP005 00.2. With codes 169, 600, 601, 602, 604, and 605; replace Signal Data Converter CV-3493/ASM-612 (A1-F18AC-580-300, WP003 00).
3 ➤ 604	<ol style="list-style-type: none">1. With or without codes 169 and 926, do table 7, WP005 00.2. With codes 169, 600, 601, 602, 603, and 605; replace Signal Data Converter CV-3493/ASM-612 (A1-F18AC-580-300, WP003 00).
3 ➤ 605	<ol style="list-style-type: none">1. With or without codes 169 and 926, do table 8, WP005 00.

Table 2. Maintenance Action For System Maintenance Codes (Continued)

Maintenance Code	Troubleshooting for Maintenance Codes
	2. With codes 169, 600, 601, 602, 603, 604; replace Signal Data Converter CV-3493/ASM-612 (A1-F18AC-580-300, WP003 00).
4 → 809	Replace Mission Data Loader (A1-F18AC-580-300, WP007 00).
4 → 812	Replace Mission Data Loader (A1-F18AC-580-300, WP007 00).
926	Do table 1, WP006 00.
995	Do table 2, WP006 00.
1 →	If WRA was replaced before test and malfunction still exists, start troubleshooting at step 2.
2 →	Deleted.
3 →	Digital Data Computer No. 1 CONFIG/IDENT Number 84A AND UP.
4 →	Digital Data Computer No. 1 CONFIG/IDENT Number 15C AND UP.

Table 3. BIT Status Message Displays NOT RDY**Support Equipment Required****NOTE**

Alternate item type designations or part numbers are listed in parentheses.

**Part Number or
Type Designation****Nomenclature**

260-6XLP
(AN/USM-311)

Multimeter

Materials Required

None

NOTE

Maintenance Status Display and Recording System Power Schematic and Built-in Test Schematic (A1-F18AC-580-500, WP005 00 and WP012 00) may be used as an aid while doing this procedure.

For component locator, refer to WP004 00.

Malfunction is caused by one of the items listed below:

Aircraft Wiring

No. 7 Circuit Breaker/Relay Panel Assembly

No. 8 Circuit Breaker/Relay Panel Assembly

Signal Data Recorder RO-508/ASM-612

Table 3. BIT Status Message Displays NOT RDY (Continued)

Procedure	No	Yes
<p> CAUTION</p> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX 1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX 1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p> <p style="margin-left: 40px;">52P-C057E 52P-C169F 52P-C159G 85P-F001A</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist” means to test for the items listed below:</p> <ul style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. <p>a. Do the substeps below:</p> <ul style="list-style-type: none"> (1) Make sure electrical power is off (A1-F18AC-LMM-000). (2) Open door 10L (A1-F18AC-LMM-010). On no. 8 circuit breaker/relay panel assembly, open circuit breaker MSDRS. (3) Open door 14R (A1-F18AC-LMM-010). Disconnect 85P-F001A from Signal Data Recorder RO-508/ASM-612. (4) On no. 8 circuit breaker/relay panel assembly (door 10L), close circuit breaker MSDRS. (5) On 163119 AND UP; ALSO 161353 THRU 163118 AFTER F/A-18 AFC 90, momentarily set MMP ENABLE/BRCU switch (nose wheelwell) to RESET position. If voltage readings are not completed within 4.5 to 5.5 minutes, momentarily set MMP ENABLE/BRCU switch to RESET position again. 		

Table 3. BIT Status Message Displays NOT RDY (Continued)

Procedure	No	Yes
(6) Does 20-28vdc exist from 85P-F001A pin 116 to 85P-F001A pin 117 (ground)?	b	d
b. Do substeps below:		
(1) Turn electrical power off (A1-F18AC-LMM-000).		
(2) Does continuity exist from 85P-F001A pin 117 to aircraft ground?	e	c
c. Do the substeps below on no. 8 circuit breaker/relay panel assembly (door 10L):		
(1) Open circuit breaker MSDRS.		
(2) Disconnect 52P-C159G.		
(3) Close circuit breaker MSDRS.		
(4) On 161353 THRU 163118 BEFORE F/A-18 AFC 90, does 20-28vdc exist from 52J-C159G pin 53 to aircraft ground?	f	l
On 163119 AND UP; ALSO 161353 THRU 163118 AFTER F/A-18 AFC 90 does, 20-28vdc exist from 52J-C159G pin 34 to aircraft ground?	f	m
d. Do the substeps below:		
(1) On GND PWR control panel assembly, set and hold 1 switch to A ON for three seconds.		
(2) Does continuity exist from 85P-F001A pin 121 to aircraft ground?	g	h
e. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step q.....	-	-
f. Isolate between no. 8 circuit breaker/relay panel assembly wiring, 85CBC004, and 83K-C014 (A1-F18AC-420-300, WP031 00) and do step q	-	-
g. Do the substeps below:		
(1) Turn electrical power off (A1-F18AC-LMM-000).		
(2) On no. 8 circuit breaker/relay panel assembly (door 10L), open circuit breaker MSDRS.		
(3) Disconnect 52P-C159F from no. 8 circuit breaker/relay panel assembly (door 10L).		
(4) Does continuity exist from 52P-C169F pin 29 to 85P-F001A pin 121?	i	j

Table 3. BIT Status Message Displays NOT RDY (Continued)

Procedure	No	Yes
h. Replace Signal Data Recorder RO-508/ASM-612 (A1-F18AC-580-300, WP004 00) and do step q	-	-

Table 3. BIT Status Message Displays NOT RDY (Continued)

Procedure	No	Yes
i. Do the substeps below: (1) Disconnect 52P-C057E from no. 7 circuit breaker/relay panel assembly (door 10L). (2) Does continuity exist from: 52J-C159F pin 29 to 52P-C057D pin 29 52J-C057E pin 39 to 85P-F001A pin 121?	e	k
j. Isolate between no. 8 circuit breaker/relay panel assembly wiring and 1K-C111 (A1-F18AC-420-300, WP031 00) and do step q	-	-
k. Isolate between no. 7 circuit breaker/relay panel assembly wiring and 1K-C103 (A1-F18AC-420-300, WP028 00) and do step q	-	-
l. Isolate defective aircraft wiring (A1-F18A()-WDM-000) from: 52P-C159G pin 53 to 85P-F001A pin 116 85P-F001A pin 117 to aircraft ground? and do step q	-	-
m. Do substeps below: (1) On no. 8 circuit breaker/relay panel assembly (door 10L), open circuit breaker MSDRS. (2) Disconnect 52P-C159F from no. 8 circuit breaker/relay panel assembly. (3) Disconnect 52P-C057D from no. 7 circuit breaker/relay panel assembly. (4) Does continuity exist from: 52P-C159G pin 34 to 52P-C057F, pin 95 52P-C159F pin 17 to 52P-C057D pin 22 52P-C159G pin 53 to 85P-F001A pin 116 85P-F001A pin 117 to aircraft ground?	e	n
n. On no. 8 circuit breaker/relay panel assembly, does continuity exist from 52J-C159E pin 17 to 52J-C159G pin 53?	o	p
o. Isolate between no. 8 circuit breaker/relay panel assembly wiring and 83K-C014 (A1-F18AC-420-300, WP031 00) and do step q	-	-
p. Do DC Power System Test (A1-F18AC-420-200, WP004 00) and do step q	-	-
q. If disconnected, removed, or opened during this procedure, make sure items listed below are connected, installed, or closed:		

Table 3. BIT Status Message Displays NOT RDY (Continued)

Procedure	No	Yes
(1) Signal Data Recorder RO-508/ASM-612		
(2) No. 7 circuit breaker/relay panel assembly		
(3) No. 8 circuit breaker/relay panel assembly		
(4) MSDRS circuit breaker		
(5) 85P-F001A		
(6) 52P-C057D		
(7) 52P-C057E		
(8) 52P-C159F		
(9) 52P-C159G		
(10) Door 10L		
(11) Door 14R	-	-

Table 4. Nose Wheelwell DDI Inoperative**Support Equipment Required****NOTE**

Alternate item type designations or part numbers are listed in parentheses.

**Part Number or
Type Designation****Nomenclature**

260-6XLP
(AN/USM-311)

Multimeter

Materials Required

None

Table 4. Nose Wheelwell DDI Inoperative (Continued)

NOTE		
Procedure	No	Yes
 CAUTION		
To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX 1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX 1 scale.		
NOTE		
The question used in logic tree “Does continuity exist” means to test for the items listed below:		
<ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		
a. Do substeps below:		
(1) Disconnect 85P-G003A from Digital Display Indicator ID-2150/ASM-612 (nose wheelwell).		
(2) On 163119 AND UP; ALSO 161353 THRU 163118 AFTER F/A-18 AFC 90, if external power is not applied or generators are not operating, in nose wheelwell, momentarily set MMP ENABLE/BRCU switch to RESET.		
(3) Momentarily install jumper wire from aircraft ground to 85P-G003A pin 33.	b	c
(4) Does 20-28vdc exist between 85P-G003A pin 7 and 85P-G003A pin 8?	b	c

Table 4. Nose Wheelwell DDI Inoperative (Continued)

Procedure	No	Yes
b. Do substeps below:		
(1) Open door 10L (A1-F18AC-LMM-010). On no. 8 circuit breaker/relay panel assembly, open circuit breaker MSDRS.		
(2) Open door 14R (A1-F18AC-LMM-010). Disconnect 85P-F001A from Signal Data Recorder RO-508/ASM-612.		
(3) Does continuity exist from: 85P-F001A pin 9 to 85P-G003A pin 33 85P-F001A pin 119 to 85P-G003A pin 7 85P-F001A pin 120 to 85P-G003A pin 8?	d	e
c. Replace Digital Display Indicator ID-2150/ASM-612 (A1-F18AC-580-300, WP005 00). Do step f	-	-
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step f	-	-
e. Replace Signal Data Recorder RO-508/ASM-612 (A1-F18AC-580-300, WP004 00).	-	-
f. If disconnected, removed, or opened during this procedure, make sure items listed below are connected, installed, or closed: (1) Signal Data Recorder RO-508/ASM-612 (2) No. 8 circuit breaker/relay panel assembly (3) Nose wheelwell Digital Display Indicator ID-2150/ASM-612 (4) MSDRS circuit breaker (5) 85P-F001A (6) 85P-G003A (7) Door 10L (8) Door 14R	-	-

Table 5. Signal Data Recorder Terminal Fail 030 Remains**Support Equipment Required**

None

Table 5. Signal Data Recorder Terminal Fail 030 Remains (Continued)

Materials Required		
Procedure	No	Yes
a. Do substeps below:		
(1) Using unit address 28, memory inspect address for ref code BDMUX1 (table 2, WP007 00).		
(2) On LDDI, does DATA readout display any of the below: X4XXXX X6XXXX?	c	b
b. Do substeps below:		
(1) On LDDI, set power switch to OFF.		
(2) Remove electrical power (A1-F18AC-LMM-000).		
(3) Open door 14R (A1-F18AC-LMM-010).		
(4) Disconnect 85P-F001B from Signal Data Recorder RO-508/ASM-612.		
(5) Isolate and repair defective aircraft wiring (A1-F18A()-WDM-000) from: 85P-F001B pin 14 to splice WTF002 pin 109 85P-F001B pin 15 to splice WTF002 pin 110 and do step d	-	-
c. Do substeps below:		
(1) On LDDI, set power switch to OFF.		
(2) Remove electrical power (A1-F18AC-LMM-000).		

Table 5. Signal Data Recorder Terminal Fail 030 Remains (Continued)

Procedure	No	Yes
<p>(3) Open door 14R (A1-F18AC-LMM-010).</p> <p>(4) Disconnect 85P-F001B from Signal Data Recorder RO-508/ASM-612.</p> <p>(5) Isolate and repair defective aircraft wiring (A1-F18A()-WDM-000) from:</p> <p style="margin-left: 20px;">85P-F001B pin 16 to splice WTF004 pin 4</p> <p style="margin-left: 20px;">85P-F001B pin 17 to splice WTF004 pin 6</p> <p style="margin-left: 20px;">and do step d</p> <p>d. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:</p> <p style="margin-left: 20px;">(1) 85P-F001B</p> <p style="margin-left: 20px;">(2) Door 14R</p>	-	-

Table 6. Maintenance Status Display and Recording System Coax Cable Parameters

Cable Number	Connector	Impedance (Ohms)	Dielectric Type	Cable Length (Inches)
TA310A	[1] 85P-F001A pin 109 to 52J-F004A pin 88	68	PTFE	198
	[2] 85P-F001A pin 109 to 52P-F004A pin 88	68	PTFE	258
TA310B	[1] 52P-F004A pin 88 to 85P-N002D pin 115	68	PTFE	197
	[2] 52J-R004A pin 88 to 85P-N002D pin 115	68	PTFE	161
TA311A	[1] 85P-F001A pin 110 to 52J-F004A pin 89	68	PTFE	198
	[2] 85P-F001A pin 110 to 52P-F004A pin 89	68	PTFE	258
TA311B	[1] 52P-F004A pin 89 to 85P-N002D pin 116	68	PTFE	197
	[2] 52J-R004A pin 89 to 85P-N002D pin 116	68	PTFE	161
TA312A	[1] 85P-F001A pin 111 to 52J-F004A pin 90	68	PTFE	198
	[2] 85P-F001A pin 111 to 52P-F004A pin 90	68	PTFE	258

**Table 6. Maintenance Status Display and Recording System Coax Cable Parameters
(Continued)**

Cable Number	Connector	Impedance (Ohms)	Dielectric Type	Cable Length (Inches)
TA312B	[1] 52P-F004A pin 90 to 85P-N002D pin 113	68	PTFE	197
	[2] 52J-R004A pin 90 to 85P-N002D pin 113	68	PTFE	161
TA313A	[1] 85P-F001A pin 112 to 52J-F004A pin 91	68	PTFE	198
	[2] 85P-F001A pin 112 to 52J-F004A pin 91	68	PTFE	258
TA313B	[1] 52P-F004A pin 91 to 85P-N002D pin 114	68	PTFE	197
	[2] 52J-R004A pin 91 to 85P-N002D pin 91	68	PTFE	161
TA314A	[1] 85P-N002D pin 103 to 52P-F004A pin 92	68	PTFE	197
	[2] 85P-N002D pin 103 to 52J-R004A pin 92	68	PTFE	161
TA314B	[1] 52J-F004A pin 92 to 85P-F001A pin 113	68	PTFE	198
	[2] 52P-F004A pin 92 to 85P-F001A pin 113	68	PTFE	258
TA315A	[1] 85P-N002D pin 104 to 52P-F004A pin 78	68	PTFE	197
	[2] 85P-N002D pin 104 to 52J-R004A pin 78	68	PTFE	161
TA315B	[1] 52J-F004A pin 78 to 85P-F001A pin 114	68	PTFE	198
	[2] 52P-F004A pin 78 to 85P-F001A pin 114	68	PTFE	258
TA316A/B	85P-F001B pin 8 to 52J-C051 pin 78	68	PTFE	[3] 232 [5] 202 [7] 251
TA316C	52P-G051 pin 78 to 85P-G003A pin 32	68	PTFE	35
TA316A/D	[1] 85P-F001B pin 8 to 52J-F004B pin 77	68	PTFE	[3] 287
	[2] 85P-F001B pin 8 to 52P-F004B pin 77	68	PTFE	[4] 306 [5] 317 [6] 372
TA316E	[1] 52P-F004B pin 77 to 85P-N002B pin 77	68	PTFE	198
	[2] 52J-R004B pin 77 to 85P-N002B pin 77	68	PTFE	161
TA317A/B	85P-F001B pin 9 to 52J-C051 pin 77	68	PTFE	[3] 232 [5] 202 [7] 251
TA317C	52P-G051 pin 77 to 85P-G003A pin 31	68	PTFE	35

**Table 6. Maintenance Status Display and Recording System Coax Cable Parameters
(Continued)**

Cable Number	Connector	Impedance (Ohms)	Dielectric Type	Cable Length (Inches)
TA317A/D	[1] 85P-F001B pin 9 to 52J-F004B pin 63 [2] 85P-F001B pin 9 to 52P-F004B pin 63	68	PTFE	[3] 287 [4] 306 [5] 317 [6] 372
TA317E	[1] 52P-F004B pin 63 to 85P-N002B pin 78 [2] 52J-R 004B pin 63 to 85P-N002B pin 78	68	PTFE	198
TA322A/B	86P-F001B pin 20 to 52J-C051 pin 76	68	PTFE	[1] 301 [2] 289
TA322C	52P-G051 pin 76 to 85P-G003A pin 30	68	PTFE	35
TA322A/D	[1] 85P-F001B pin 20 to 52J-F004A pin 51 [2] 85P-F001B pin 20 to 52P-F004A pin 51	68	PTFE	243
TA322E	[1] 52P-F004A pin 51 to 85P-N002B pin 99 [2] 52J-R 004A pin 51 to 85P-N002B pin 99	68	PTFE	294
TA323A/B	85P-F001B pin 21 to 52J-C051 pin 75	68	PTFE	[1] 198 [2] 289
TA323C	52P-G051 pin 75 to 85P-G003A pin 29	68	PTFE	35
TA323A/D	[1] 85P-F001B pin 21 to 52J-F004A pin 38 [2] 85P-F001B pin 21 to 52P-F004A pin 38	68	PTFE	243
TA323E	[1] 52P-F004A pin 38 to 85P-N002B pin 100 [2] 52J-R 004A pin 38 to 85P-N002B pin 100	68	PTFE	294
TA376A/B	85P-F001A pin 105 to 52J-C051 pin 74	68	PTFE	[8] 198 [4] 202 [6] 261
TA376C	52P-G051 pin 74 to 85P-G003A pin 28	68	PTFE	255
TA377A/B	85P-F001A pin 106 to 52J-C051 pin 73	68	PTFE	[8] 35 [4] 202 [6] 261
TA377C	52P-G051 pin 73 to 85P-G003A pin 27	68	PTFE	255
TA378A	85P-G003A pin 26 to 52P-G051 pin 72	68	PTFE	35
TA378B/C	52J-C051 pin 72 to 85P-F001A pin 107	68	PTFE	[8] 202 [4] 261 [6] 255

**Table 6. Maintenance Status Display and Recording System Coax Cable Parameters
(Continued)**

Cable Number	Connector	Impedance (Ohms)	Dielectric Type	Cable Length (Inches)
TA379A	85P-G003A pin 25 to 52P-G051 pin 71	68	PTFE	8 → 202
TA379B/C	52J-C051 pin 71 to 85P-F001A pin 108	68	PTFE	4 → 261 6 → 255

LEGEND

- 1 → F/A-18A.
- 2 → F/A-18B.
- 3 → F/A-18A 161353 THRU 161528.
- 4 → F/A-18A 161702 AND UP.
- 5 → F/A-18B 161354 THRU 161360.
- 6 → F/A-18B 161704 AND UP.
- 7 → 161702 AND UP.
- 8 → 161353 THRU 161528.

Table 7. Signal Data Converter Fail (Code 167)**Support Equipment Required**

None

Materials Required

None

NOTE

Maintenance Status Display and Recording System Power Schematic (A1-F18AC-580-600, WP005 00), Fatigue Strain Data Schematic (A1-F18AC-580-500, WP013 00) and Built-in Test Schematic (A1-F18AC-580-500, WP012 00) may be used as an aid while doing this procedure.

Memory inspect data used in this procedure is provided in WP007 00.

For component locator, refer to WP004 00.

Table 7. Signal Data Converter Fail (Code 167) (Continued)

Malfunction is caused by one of the items listed below:		
Aircraft Wiring Drag Brace Support Strain Gage Left Horizontal Stabilizer Strain Gage Left Vertical Stabilizer Strain Gage Left Wing Fold Strain Gage Left Wing Root Strain Gage Right Horizontal Stabilizer Strain Gage Right Vertical Stabilizer Strain Gage Signal Data Converter CV-3493/ASM-612		
Procedure	No	Yes
 <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX 1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX 1 scale.</p>		
<p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. <p>a. Do substeps below:</p> <ol style="list-style-type: none"> (1) Using unit address 28, memory inspect address for ref code IEBDCB (table 2, WP007 00). (2) On LDDI, does DATA readout display any of the below: <p style="margin-left: 40px;">XXXX2X XXXX3X XXXX4X XXXX5X XXXX6X XXXX7X?</p>		
<p>b. Do substeps below:</p> <ol style="list-style-type: none"> (1) On LDDI, set power switch to OFF. 		

Table 7. Signal Data Converter Fail (Code 167) (Continued)(Continued)

Procedure	No	Yes
(2) Remove electrical power (A1-F18AC-LMM-000).		
(3) Open door 14R (A1-F18AC-LMM-010). Disconnect 85P-F001A and 85P-F001B from Signal Data Recorder RO-508/ASM-612.		
(4) Open door 32R (A1-F18AC-LMM-010). Disconnect 85P-N002B and 85P-N002D from Signal Data Converter CV-3493/ASM-612.		
(5) Using time domain reflectometer (A1-F18AC-WRM-000) and table 6, test wiring from: 85P-F001A pin 109 to 85P-N002D pin 115 (TA310) 85P-F001A pin 110 to 85P-N002D pin 116 (TA311) 85P-F001A pin 111 to 85P-N002D pin 113 (TA312) 85P-F001A pin 112 to 85P-N002D pin 114 (TA313) 85P-F001A pin 113 to 85P-N002D pin 103 (TA314) 85P-F001A pin 114 to 85P-N002D pin 104 (TA315) 85P-F001B pin 20 to 85P-N002B pin 99 (TA322) 85P-F001B pin 21 to 85P-N002B pin 100 (TA321) 85P-F001B pin 8 to 85P-N002B pin 77 (TA316) 85P-F001B pin 9 to 85P-N002B pin 78 (TA317)		
(6) Does wiring test good?	c	d
c. Isolate defective wiring (table 6 and A1-F18A()-WDM-000) and do step ac	-	-
d. Do substeps below:		
(1) Disconnect 85P-N002A from Signal Data Converter CV-3493/ASM-612 (door 32R).		
(2) Does continuity exist from: 85P-F001A pin 7 to 85P-N002A pin 126 85P-F001A pin 8 to 85P-N002A pin 127 85P-N002D pin 94 to 85P-N002D pin 95 85P-N002D pin 98 to 85P-N002D pin 99 85P-N002D pin 105 to 85P-N002D pin 106 85P-N002D pin 109 to 85P-N002D pin 110?	e	f
e. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step ac	-	-
f. Replace Signal Data Converter CV-3493/ASM-612 (A1-F18AC-580-300, WP003 00) and do step ac	-	-

Table 7. Signal Data Converter Fail (Code 167) (Continued)

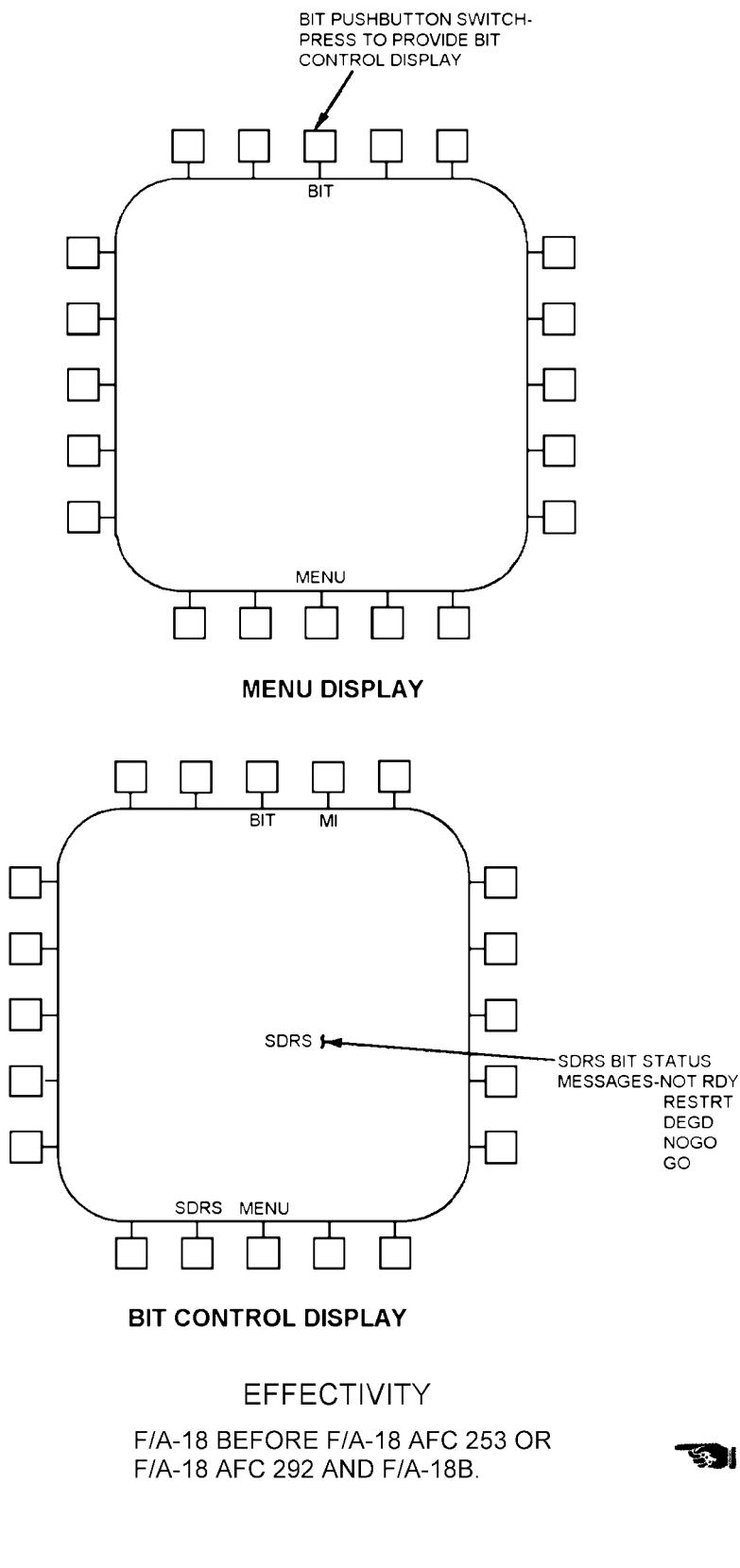
Procedure	No	Yes
g. On LDDI, does DATA readout display any of the below: XXX4XX XXX5XX XXX6XX XXX7XX?	f	h
h. Do substeps below: (1) On LDDI, set power switch to OFF. (2) Remove electrical power (A1-F18AC-LMM-000). (3) Open door 32R (A1-F18AC-LMM-010). (4) Disconnect 85P-N002D from Signal Data Converter CV-3493/ASM-612. (5) Do the resistance tests below: 85P-N002D pin 91 to pin 92 (980 to 1020 ohms) 85P-N002D pin 89 to pin 90 (980 to 1020 ohms) 85P-N002D pin 89 to pin 91 (735 to 765 ohms) 85P-N002D pin 89 to pin 92 (735 to 765 ohms) 85P-N002D pin 90 to pin 92 (735 to 765 ohms) 85P-N002D pin 90 to pin 91 (735 to 765 ohms) Are all of the resistance indications in tolerance?	i	k
i. Are all of the resistance indications out of tolerance?	e	j
j. Reterminant aircraft wiring to backup strain gage 85M-T010 (A1-F18AC-580-300, WP006 00) and do step ac	-	-
k. Do the resistance tests below: 85P-N002D pin 84 to pin 85 (980 to 1020 ohms) 85P-N002D pin 82 to pin 83 (980 to 1020 ohms) 85P-N002D pin 82 to pin 84 (735 to 765 ohms) 85P-N002D pin 82 to pin 85 (735 to 765 ohms) 85P-N002D pin 83 to pin 85 (735 to 765 ohms) 85P-N002D pin 83 to pin 84 (735 to 765 ohms) Are all of the resistance indications in tolerance?	l	n
l. Are all of the resistance indications out of tolerance?	e	m
m. Reterminant aircraft wiring to backup strain gage 85M-S011 (A1-F18AC-580-300, WP006 00) and do step ac	-	-

Table 7. Signal Data Converter Fail (Code 167) (Continued)

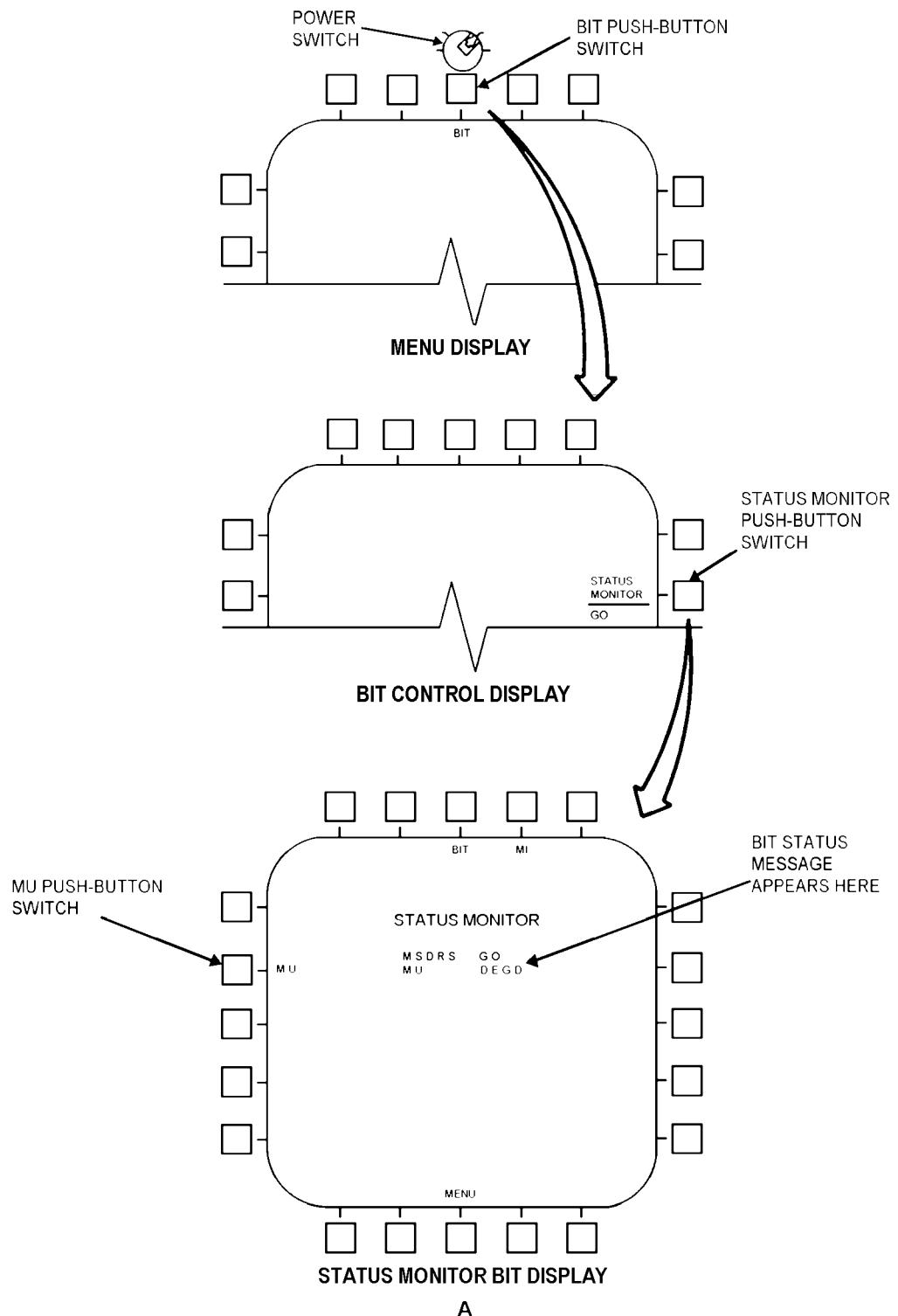
Procedure	No	Yes
n. Do the resistance tests below: 85P-N002D pin 80 to pin 81 (980 to 1020 ohms) 85P-N002D pin 78 to pin 79 (980 to 1020 ohms) 85P-N002D pin 78 to pin 80 (735 to 765 ohms) 85P-N002D pin 78 to pin 81 (735 to 765 ohms) 85P-N002D pin 79 to pin 81 (735 to 765 ohms) 85P-N002D pin 79 to pin 80 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	o	q
o. Are all of the resistance indications out of tolerance?	e	p
p. Reterminant aircraft wiring to backup strain gage 85M-T012 (A1-F18AC-580-300, WP006 00) and do step ac	-	-
q. Do the resistance tests below: 85P-N002D pin 73 to pin 74 (980 to 1020 ohms) 85P-N002D pin 71 to pin 72 (980 to 1020 ohms) 85P-N002D pin 71 to pin 73 (735 to 765 ohms) 85P-N002D pin 71 to pin 74 (735 to 765 ohms) 85P-N002D pin 72 to pin 74 (735 to 765 ohms) 85P-N002D pin 72 to pin 73 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	r	t
r. Are all of the resistance indications out of tolerance?	e	s
s. Rterminant aircraft wiring to backup strain gage 85M-S013 (A1-F18AC-580-300, WP006 00) and do step ac	-	-
t. Do the resistance tests below: 85P-N002D pin 69 to pin 70 (980 to 1020 ohms) 85P-N002D pin 67 to pin 68 (980 to 1020 ohms) 85P-N002D pin 67 to pin 69 (735 to 765 ohms) 85P-N002D pin 67 to pin 70 (735 to 765 ohms) 85P-N002D pin 68 to pin 70 (735 to 765 ohms) 85P-N002D pin 68 to pin 69 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	u	w
u. Are all of the resistance indications out of tolerance?	e	v
v. Rterminant aircraft wiring to backup strain gage 85M-F019 (A1-F18AC-580-300, WP006 00) and do step ac	-	-

Table 7. Signal Data Converter Fail (Code 167) (Continued)

Procedure	No	Yes
w. Do the resistance tests below: 85P-N002D pin 57 to pin 58 (980 to 1020 ohms) 85P-N002D pin 55 to pin 56 (980 to 1020 ohms) 85P-N002D pin 55 to pin 57 (735 to 765 ohms) 85P-N002D pin 55 to pin 58 (735 to 765 ohms) 85P-N002D pin 56 to pin 58 (735 to 765 ohms) 85P-N002D pin 56 to pin 57 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	x	z
x. Are all of the resistance indications out of tolerance?	e	y
y. Reterminant aircraft wiring to backup strain gage 85M-U020 (A1-F18AC-580-300, WP006 00) and do step ac	-	-
z. Do the resistance tests below: 85P-N002D pin 61 to pin 62 (980 to 1020 ohms) 85P-N002D pin 59 to pin 60 (980 to 1020 ohms) 85P-N002D pin 59 to pin 61 (735 to 765 ohms) 85P-N002D pin 59 to pin 62 (735 to 765 ohms) 85P-N002D pin 60 to pin 62 (735 to 765 ohms) 85P-N002D pin 60 to pin 61 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	aa	f
aa. Are all of the resistance indications out of tolerance?	e	ab
ab. Reterminant aircraft wiring to backup strain gage 85M-U021 (A1-F18AC-580-300, WP006 00) and do step ac	-	-
ac. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed: (1) Signal data converter (2) 85P-F001A (3) 85P-F001B (4) 85P-N002A (5) 85P-N002B (6) 85P-N002D (7) Door 14R (8) Door 32R	-	-

**Figure 1. Test Displays (Sheet 1)**

00300101



A

EFFECTIVITY

ON F/A-18A 162394 THRU 163175 AFTER
F/A-18 AFC 253 OR F/A-18 AFC 292

00300102

Figure 1. Test Displays (Sheet 2)

**ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
COMPONENT LOCATOR
MAINTENANCE STATUS DISPLAY AND RECORDING SYSTEM**

Reference Material

None

Alphabetical Index

Subject	Page No.
Component Locator, Figure 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 27	-	Leading Edge Flap Design; Improvement of (ECP MDA-F/A-18-00044)	1 Jun 86	ECP coverage only
F/A-18 AFC 056	27 Mar 85	Fuel System Components Replacement and System Inspection (ECP MDA-F/A-18-00158R and ECP MDA-F/A-18-00160)	1 Jun 86	-
F/A-18 AFC 49	-	Addition of Sealed Lead Acid Battery (ECP MDA-F/A-18-00074)	1 Sep 86	ECP coverage only
F/A-18 AFC 48	-	Alternating Current Bus Isolation (ECP MDA-F/A-18-00121)	1 Sep 86	ECP coverage only
F/A-18 AFC 70	-	Motive Flow Fuel Boost Pump Pressure Switch; Installation of (ECP MDA-F/A-18-00158R2 and ECP MDA-F/A-18-00160)	15 Oct 87	ECP coverage only
F/A-18 AFC 90	-	GFE Battery Relay Control Unit; Incorporation of (ECP MDA-F/A-18-00165R1)	1 Aug 88	ECP coverage only
F/A-18 AFC 253	-	US Naval Reserves A ⁺ Avionics Upgrade; Incorporation of (ECP MDA-F/A-18-0560R1)	1 Oct 00	-
F/A-18 AFC 292	-	US Marine Corps Reserves A ⁺ Avionics Upgrade; Incorporation of (ECP MDA-F/A-18-0583)	1 Oct 00	-
F/A-18 AFC 225	-	Avionics Multiplex Bus Upgrade; Modification of (ECP MDA-F/A-18-0529)	1 Jun 02	-

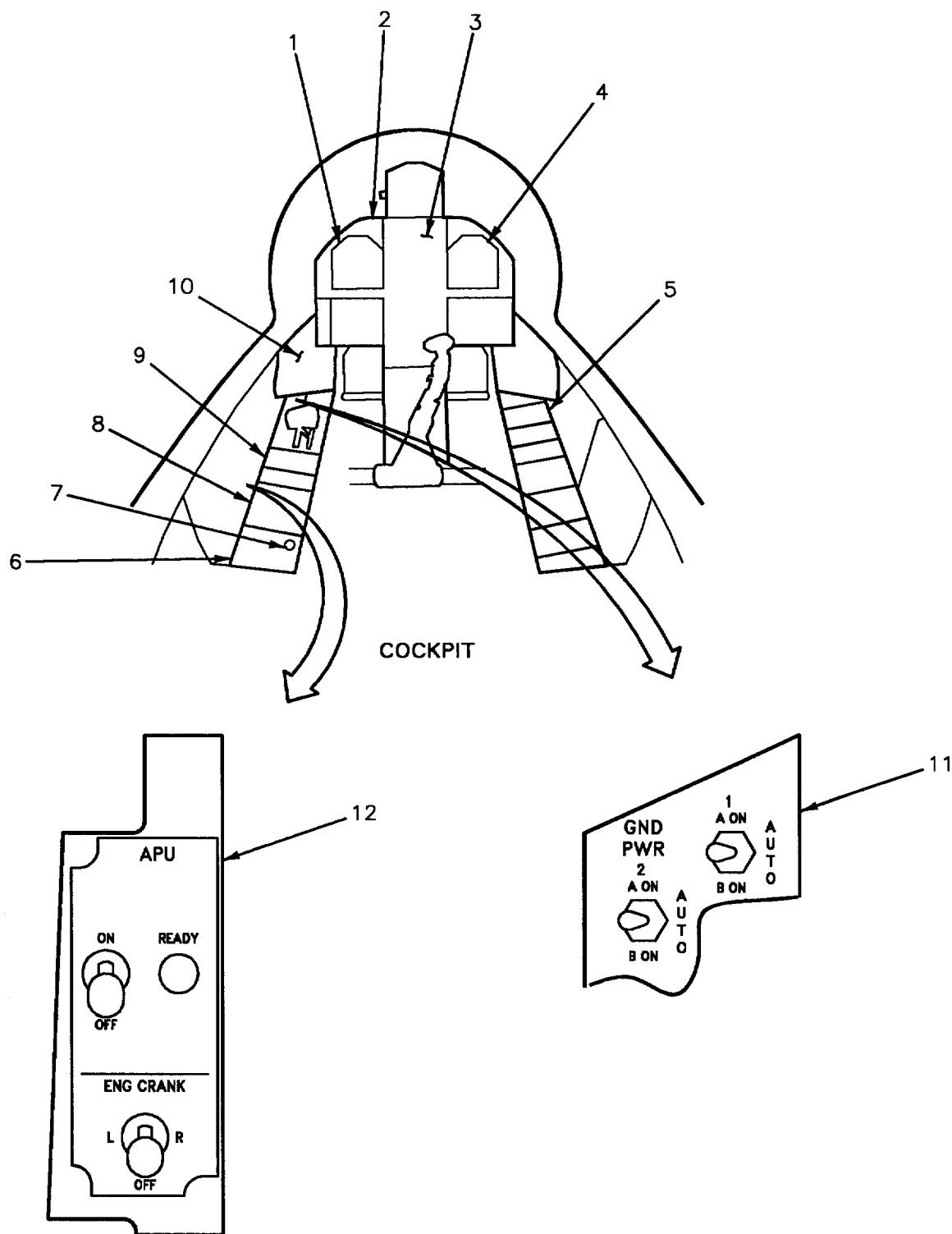
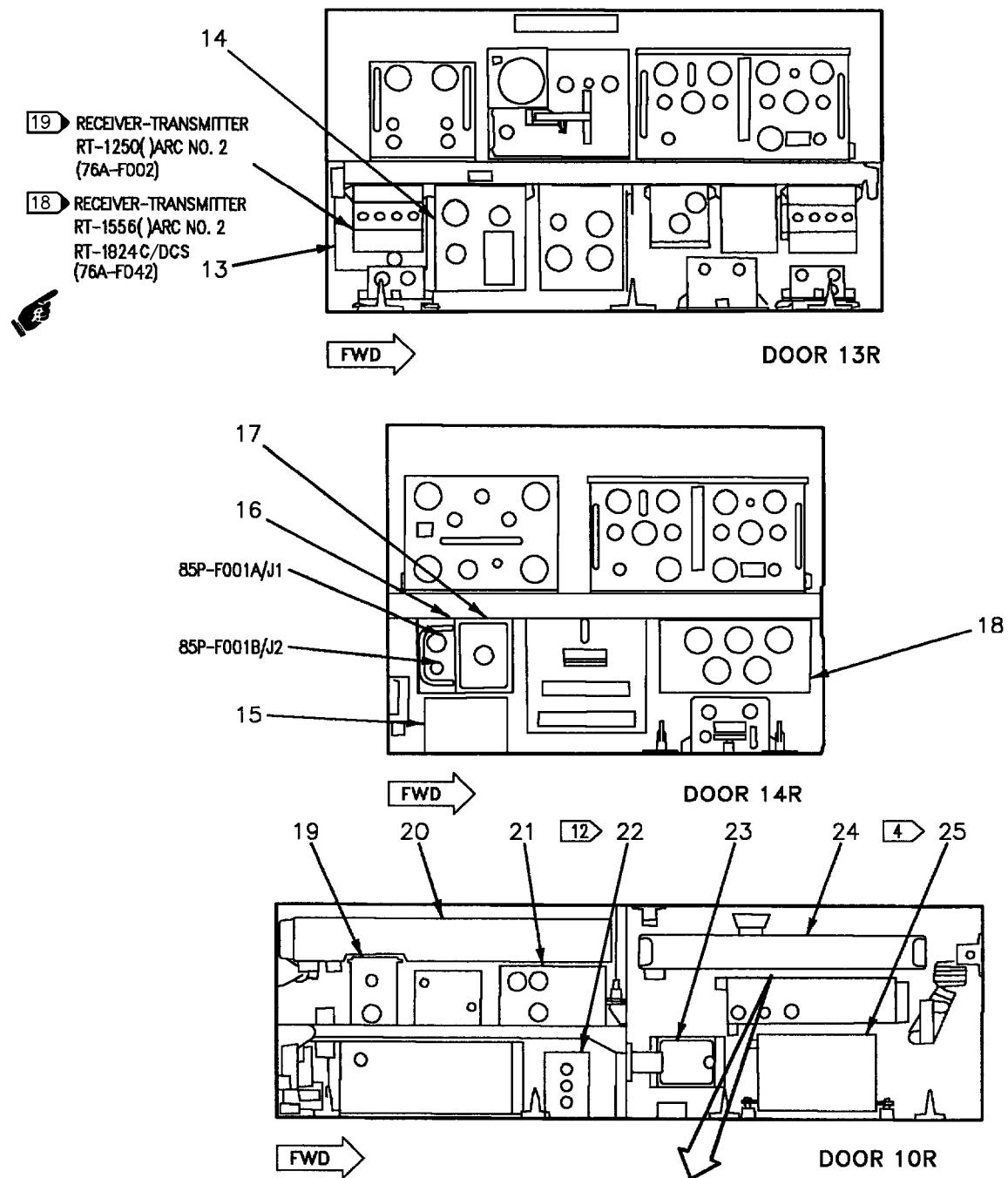


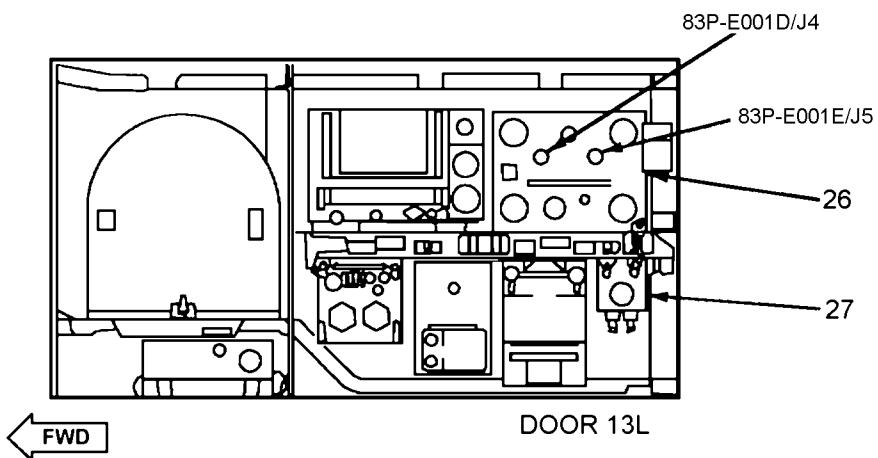
Figure 1. Component Locator (Sheet 1)

18AC-580-20-(1-1)13-CATI



52A-D024 NO. 2 CIRCUIT BREAKER PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
6 A11	80CBD007	MFD	R 115VAC ØA
7 A17	80CBD007	MFD	R 115VAC ØA
6 B11	80CBD008	MFD	R 115VAC ØB
7 B17	80CBD008	MFD	R 115VAC ØB
6 C11	80CBD009	MFD	R 115VAC ØC
7 D7	80CBD009	MFD	R 115VAC ØC

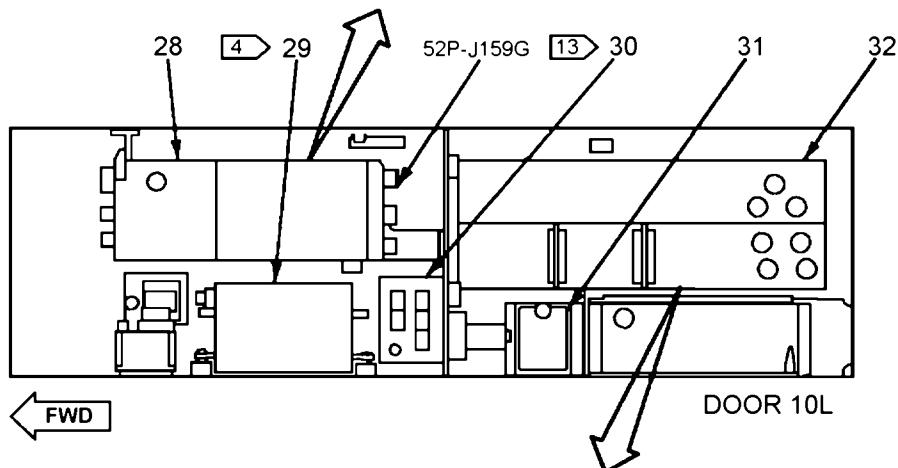
Figure 1. Component Locator (Sheet 2)



52A-C159 NO. 8 CIRCUIT BREAKER/ RELAY PANEL ASSEMBLY

ZONE	REF DES	NOMENCLATURE	BUS
D2	85CBC004	MSDRS	4 MAINT 24/28VDC 5 U BATT/MAINT 24/28VDC
D12	80CBC006	MMD	L 115VAC ØC
E12	80CBC005	MMD	L 115VAC ØB
F12	80CBC004	MMD	L 115VAC ØA
A7	85CBC045	MU	L 28VDC

→ 20 → 18 →



52A-C057 NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY

ZONE	REF DES	NOMENCLATURE	BUS
A20	83CBC006	MISSION COMP NO 1	L 115VAC ØA
B20	83CBC007	MISSION COMP NO 1	L 115VAC ØB
C20	83CBC008	MISSION COMP NO 1	L 115VAC ØC

Figure 1. Component Locator (Sheet 3)

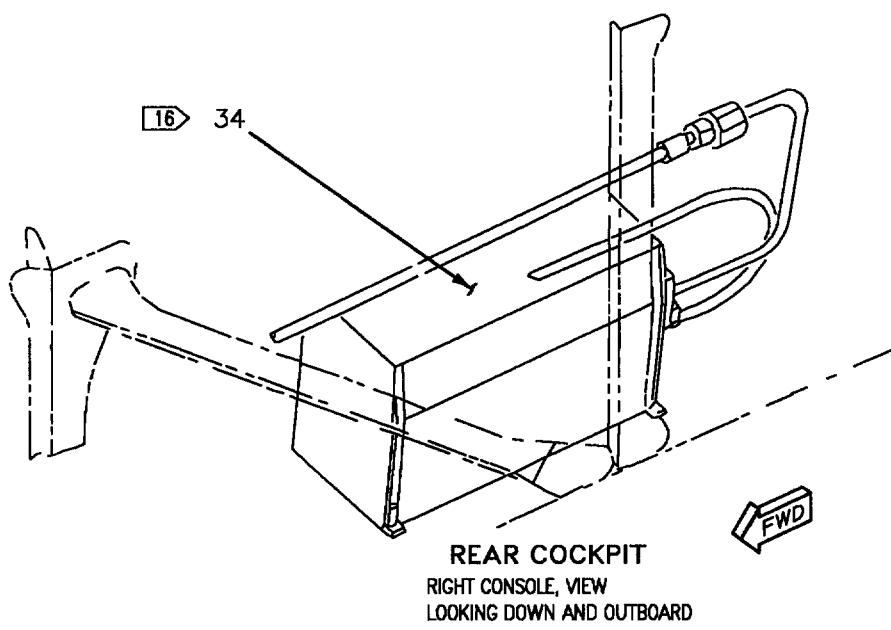
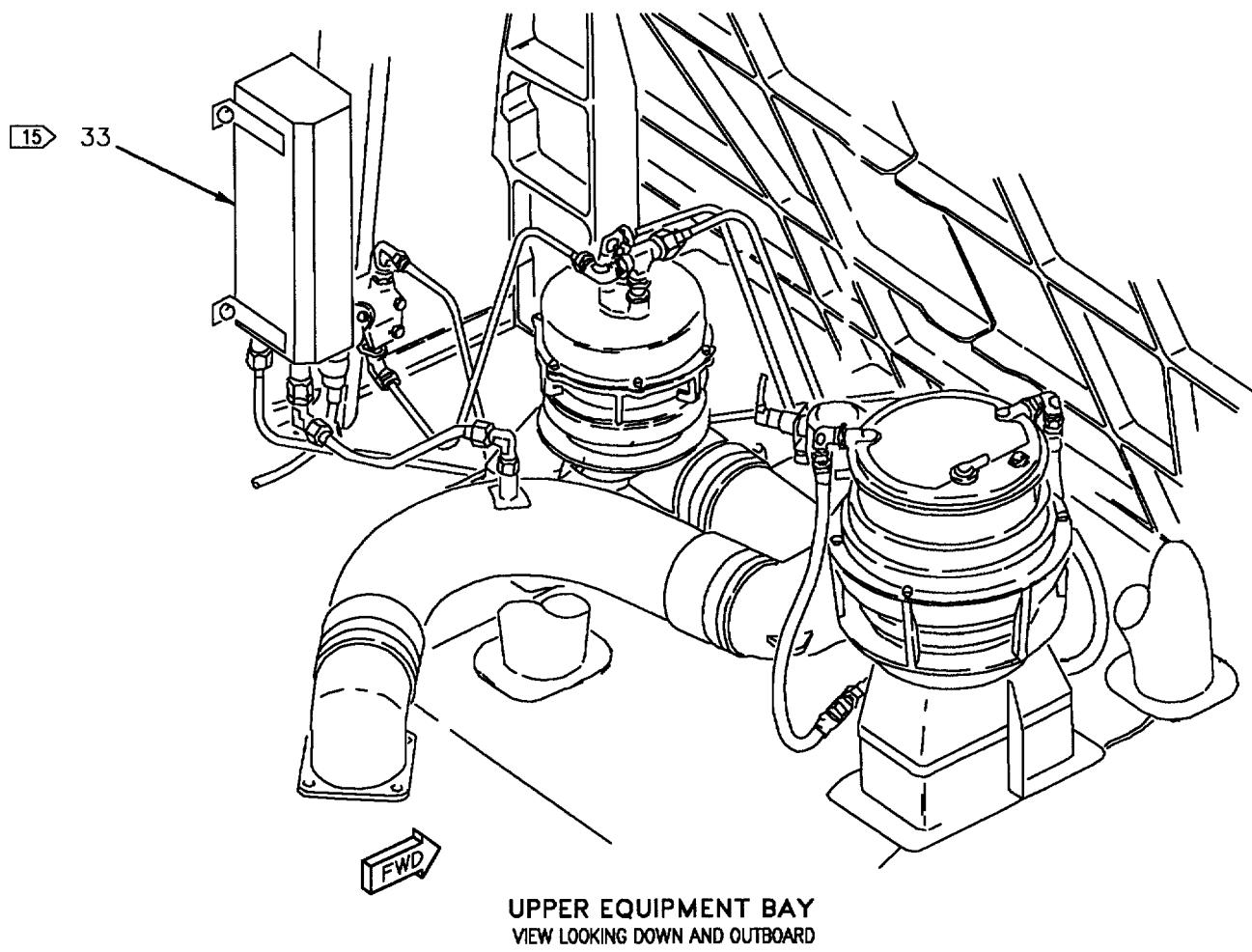


Figure 1. Component Locator (Sheet 4)

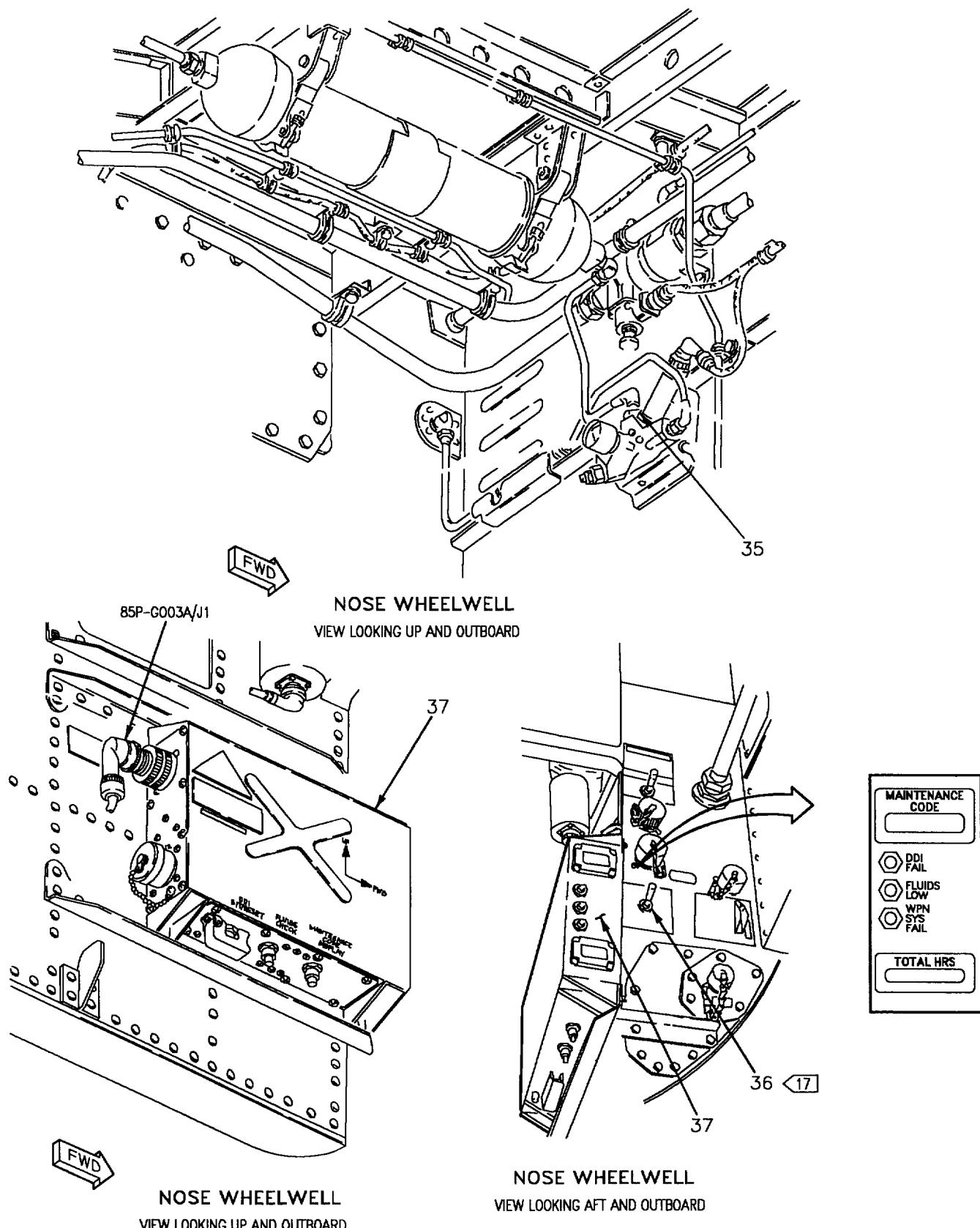


Figure 1. Component Locator (Sheet 5)

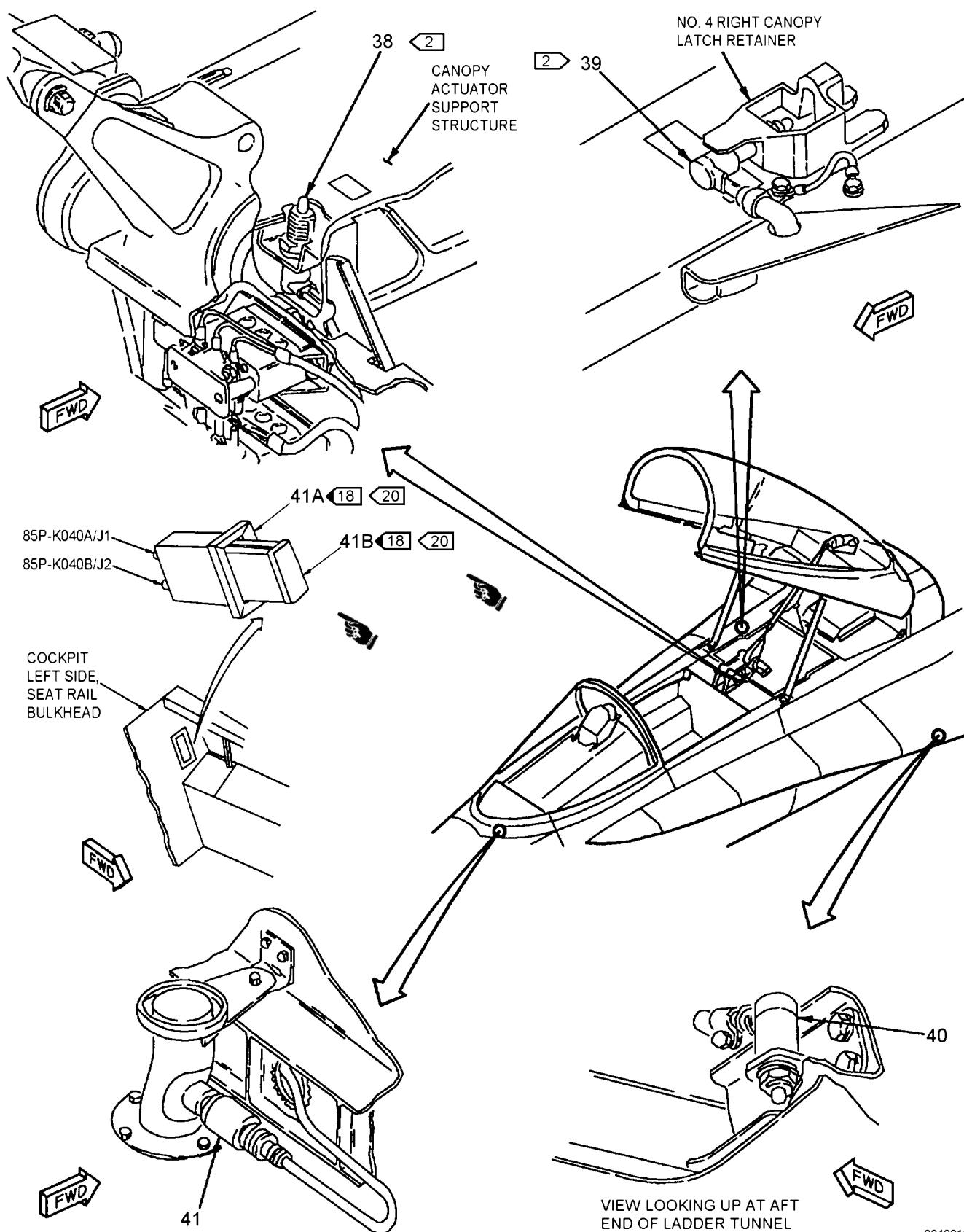


Figure 1. Component Locator (Sheet 6)

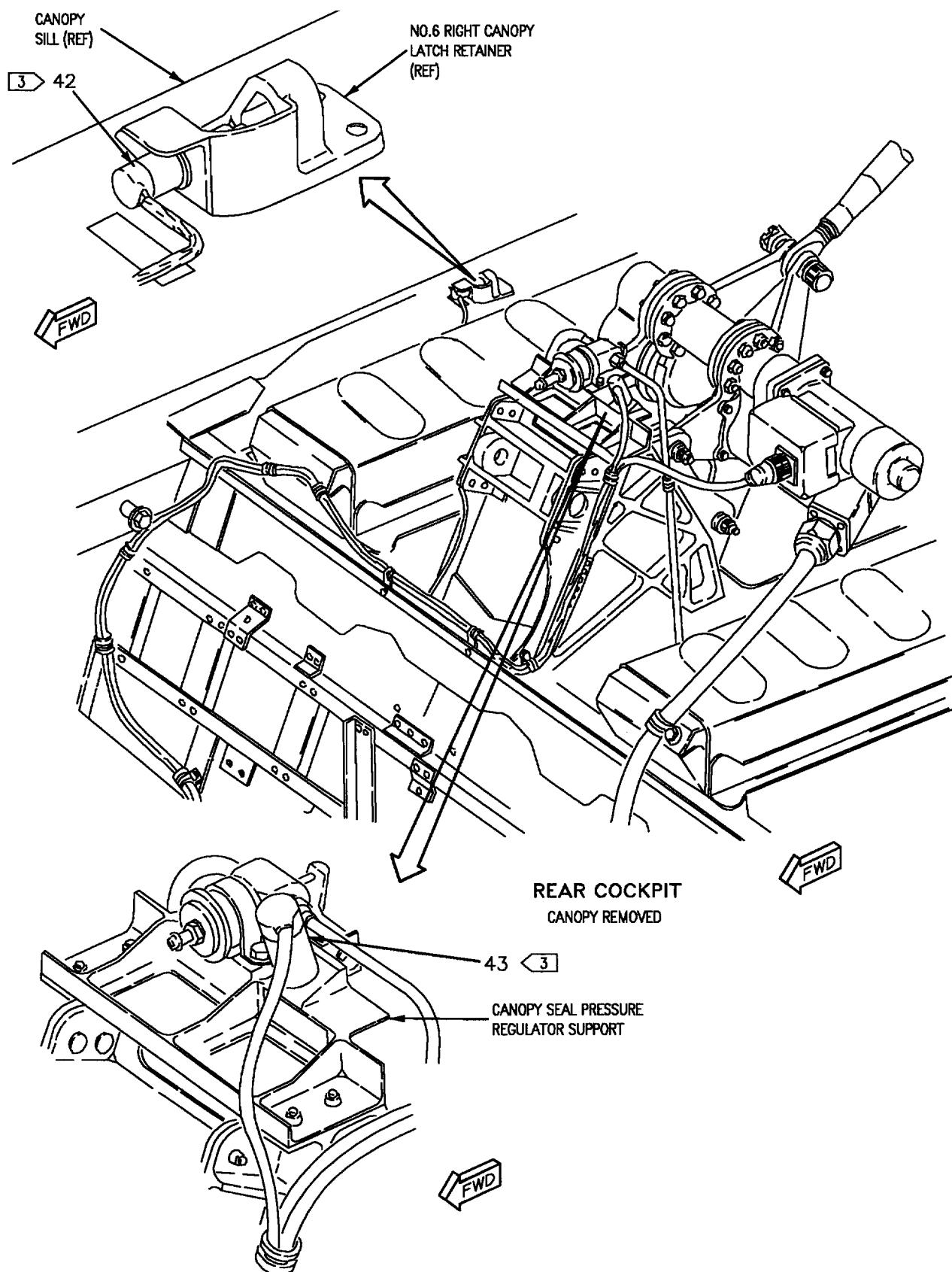
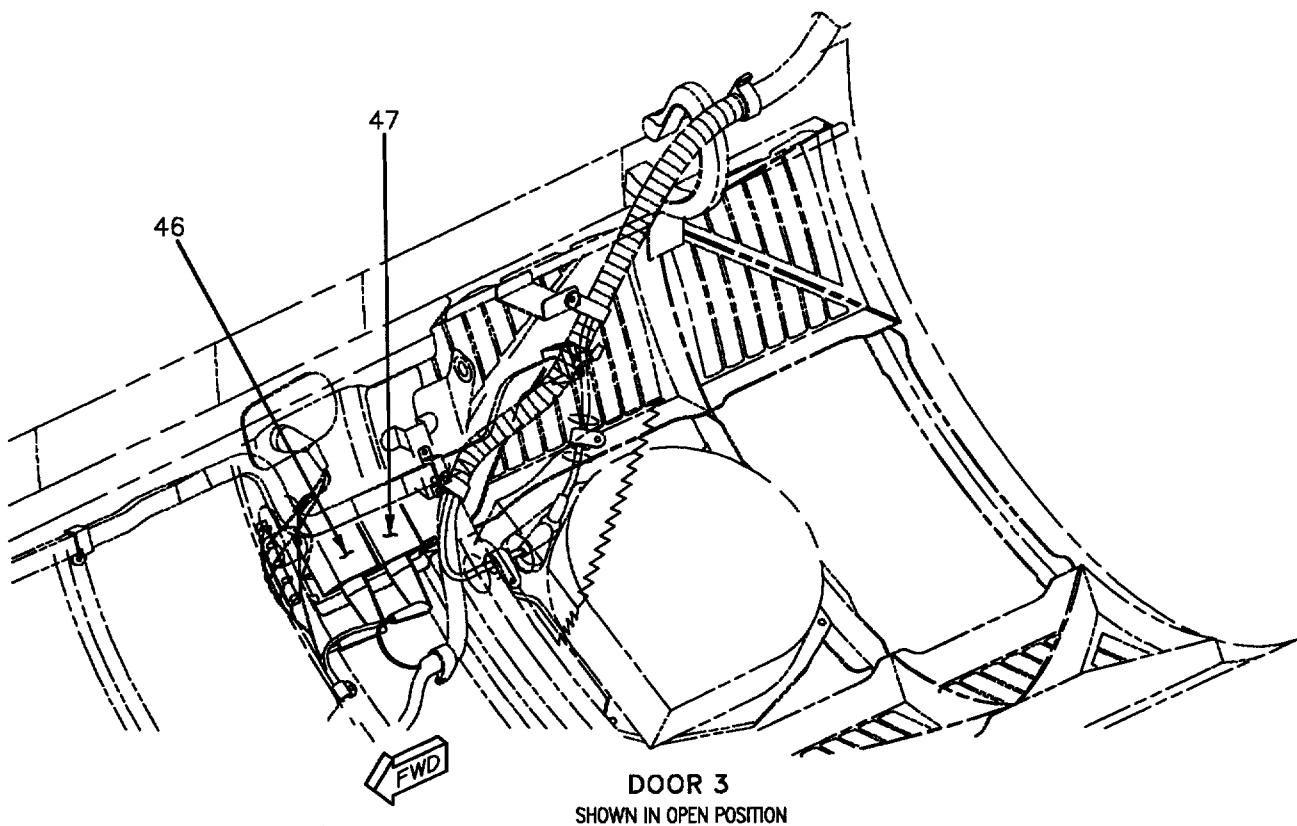
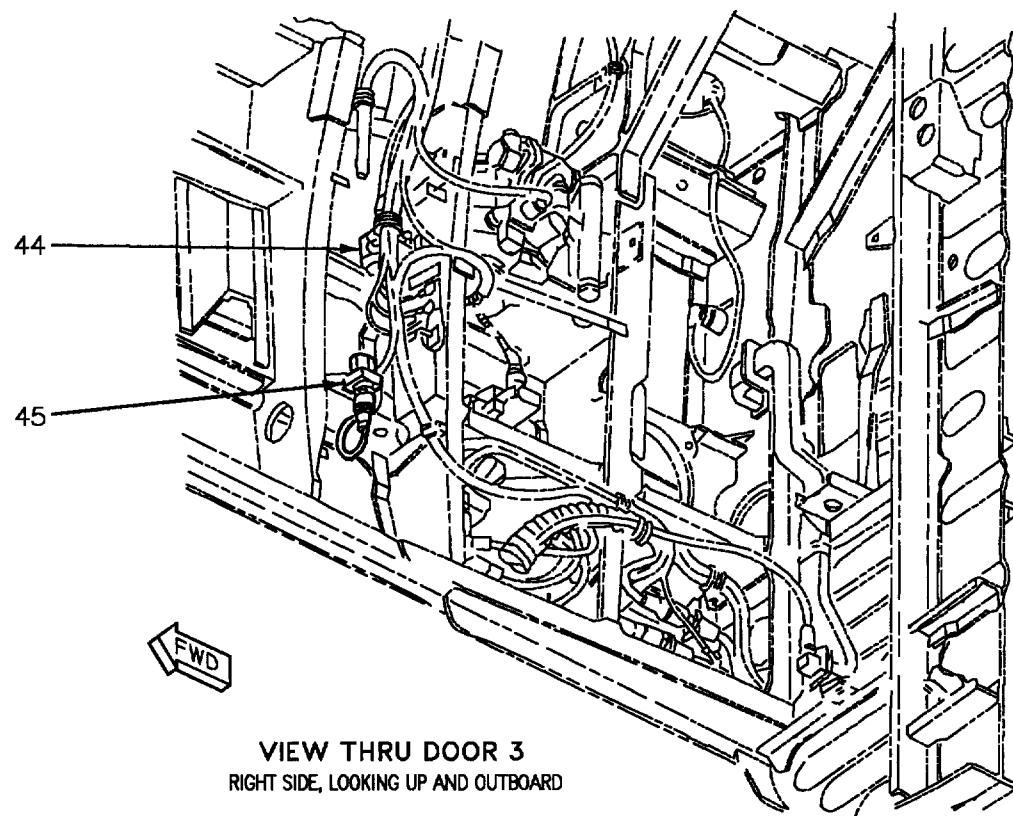


Figure 1. Component Locator (Sheet 7)

**Figure 1. Component Locator (Sheet 8)**

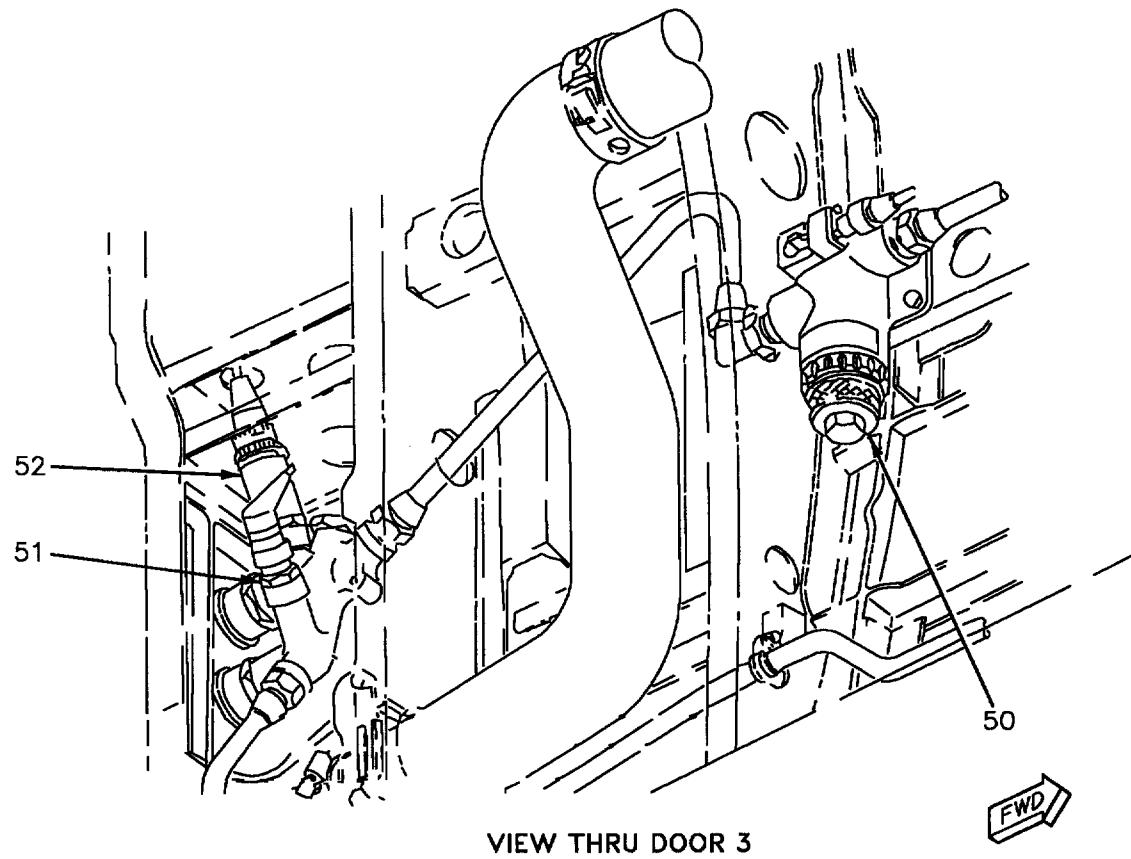
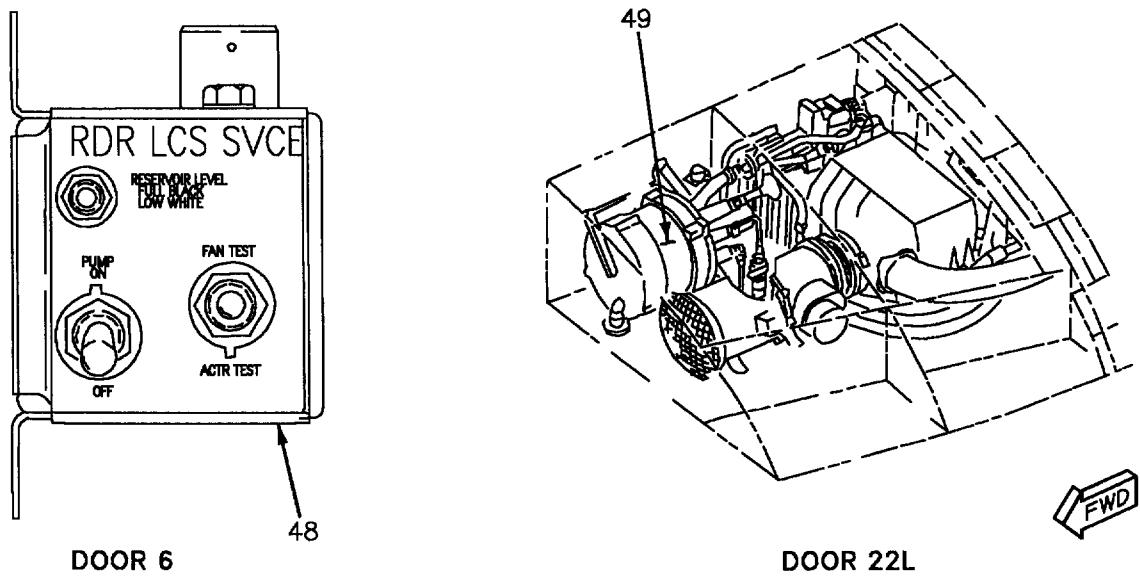
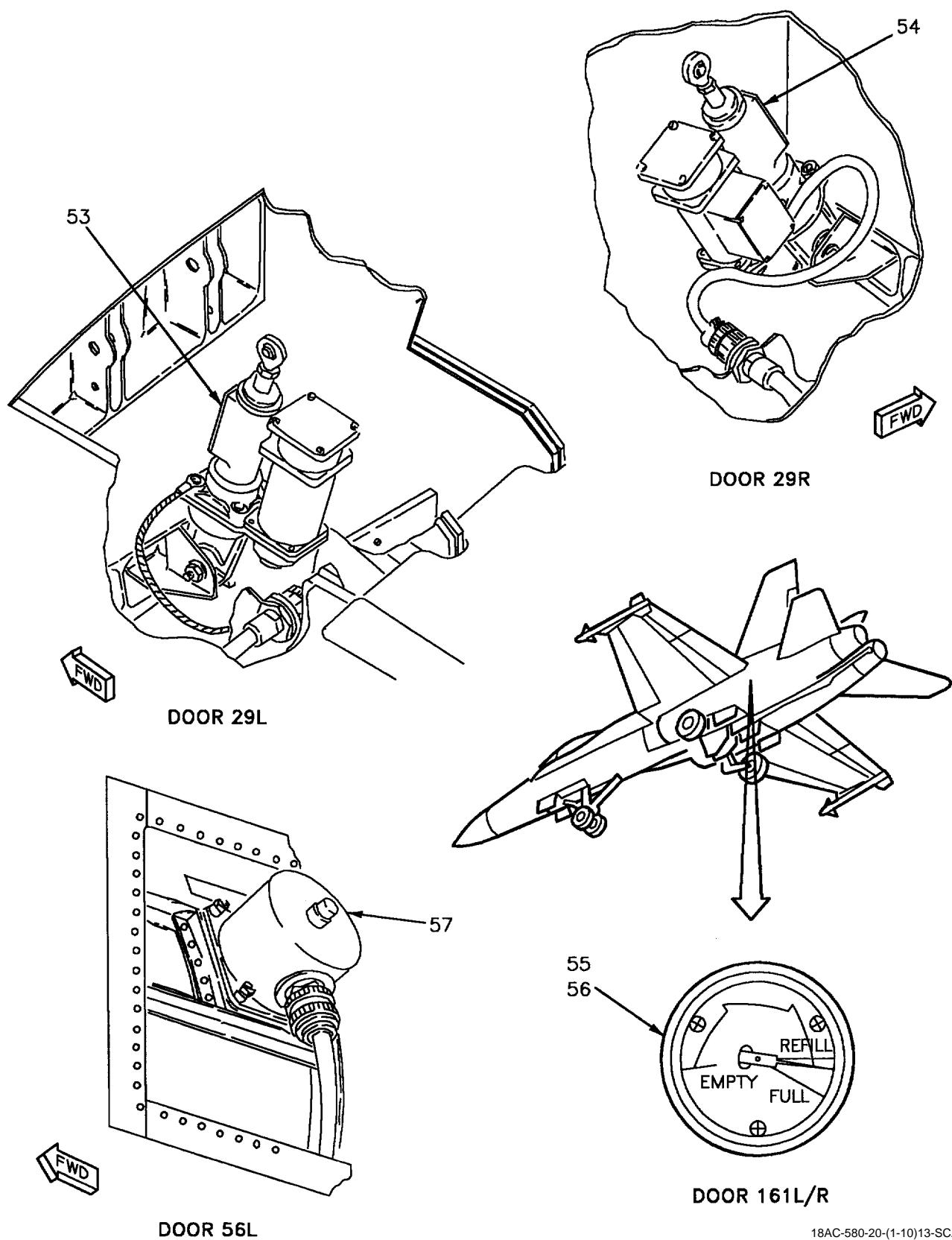


Figure 1. Component Locator (Sheet 9)

**Figure 1. Component Locator (Sheet 10)**

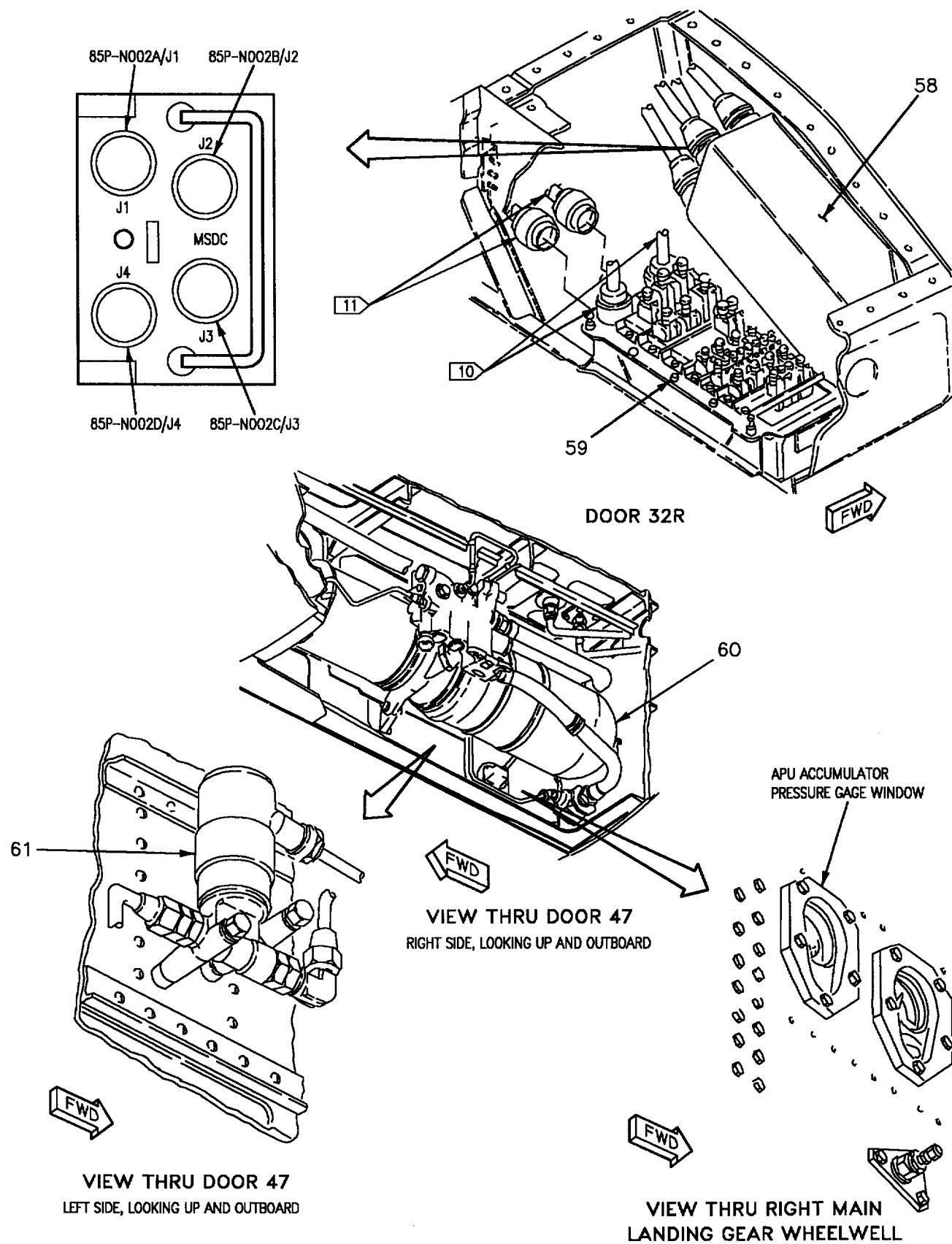
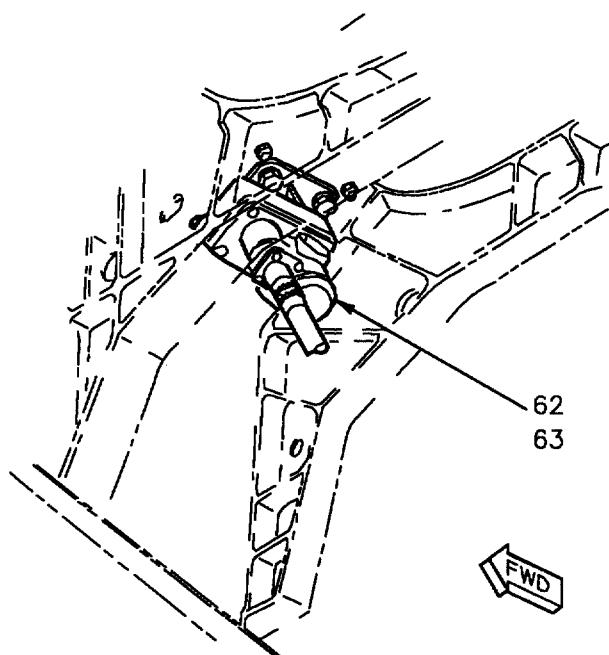
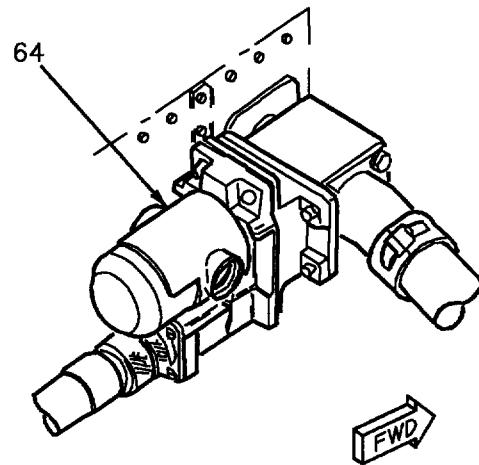


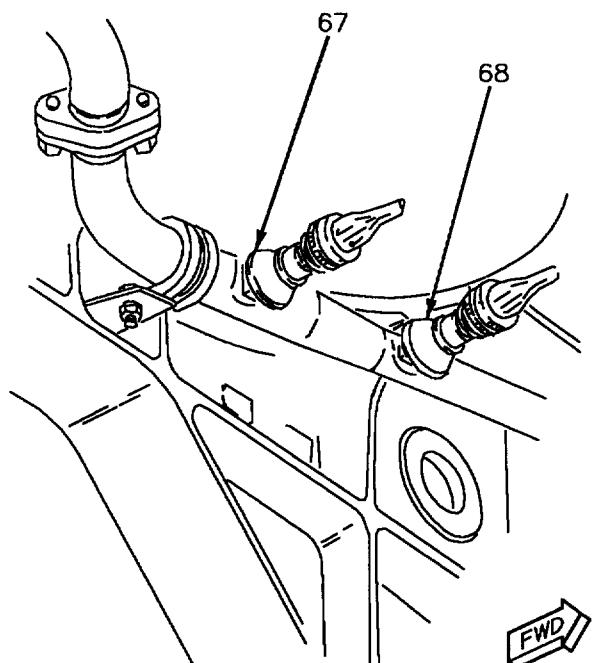
Figure 1. Component Locator (Sheet 11)



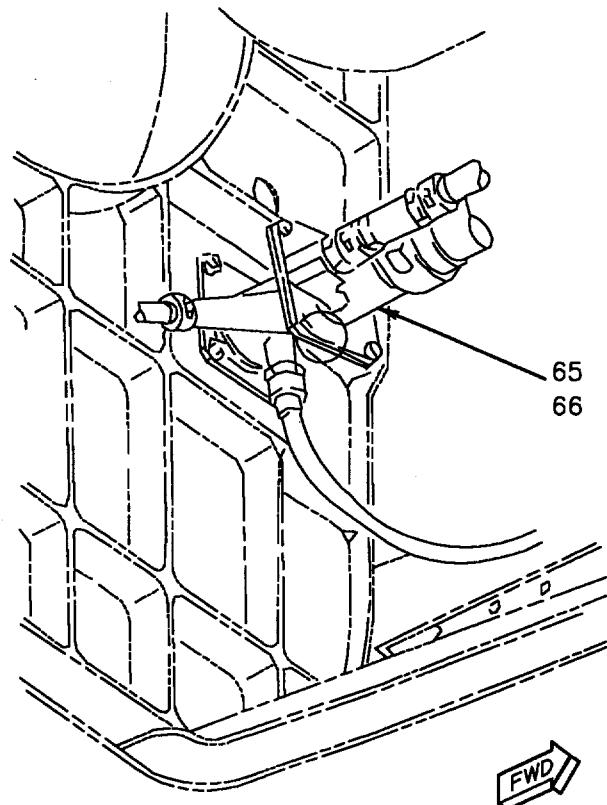
LEFT MAIN LANDING GEAR WHEELWELL
VIEW LOOKING UP AND INBOARD
LEFT SIDE SHOWN, RIGHT SIDE TYPICAL



ACCESS THRU DOOR 53L
FLAME COVER REMOVED FOR CLARITY

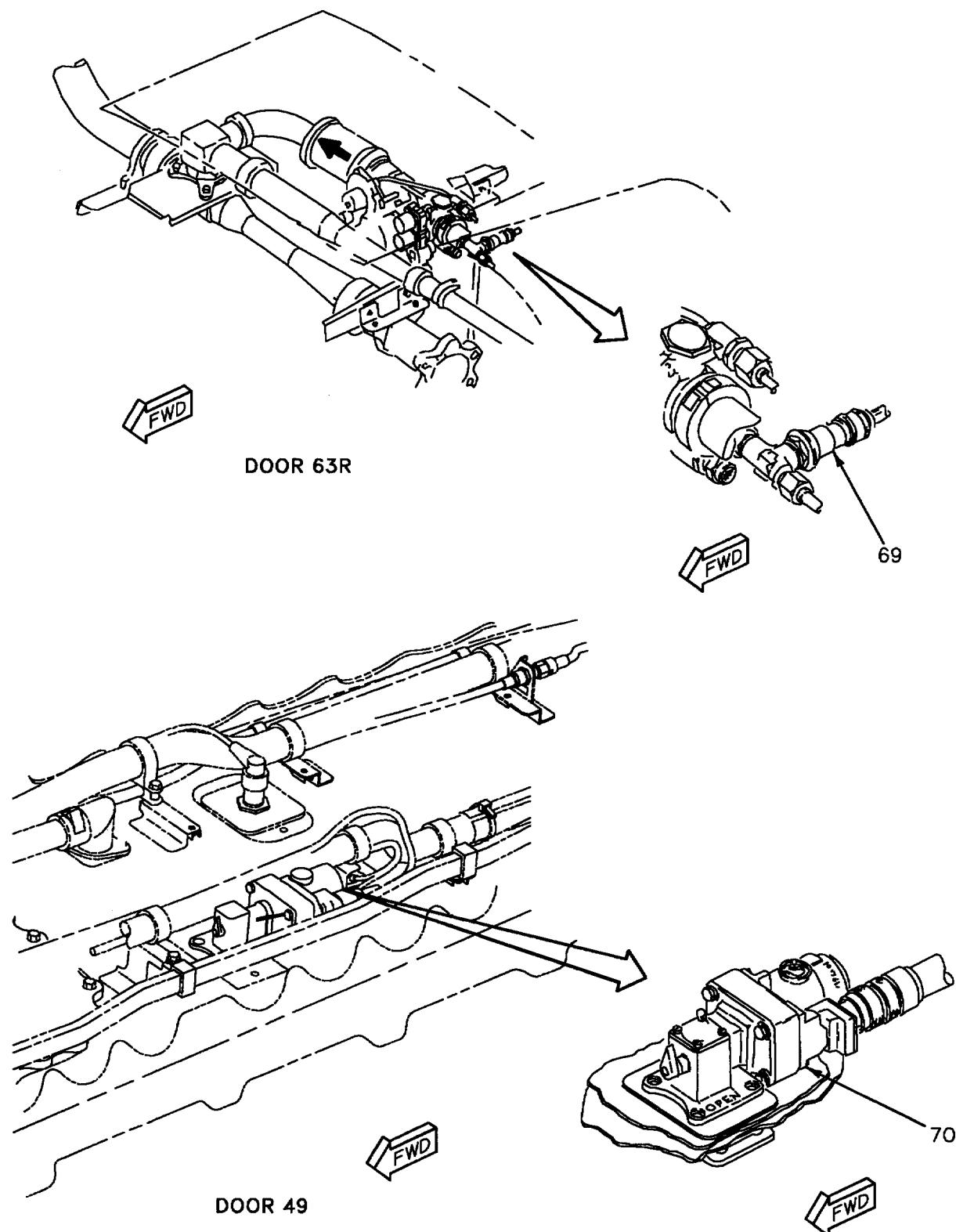


LEFT MAIN LANDING GEAR WHEELWELL
VIEW LOOKING UP AND OUTBOARD
LEFT SIDE SHOWN, RIGHT SIDE TYPICAL



VIEW THRU DOOR 53L
LOOKING UP AND OUTBOARD
LEFT SIDE SHOWN, RIGHT SIDE TYPICAL

Figure 1. Component Locator (Sheet 12)

**Figure 1. Component Locator (Sheet 13)**

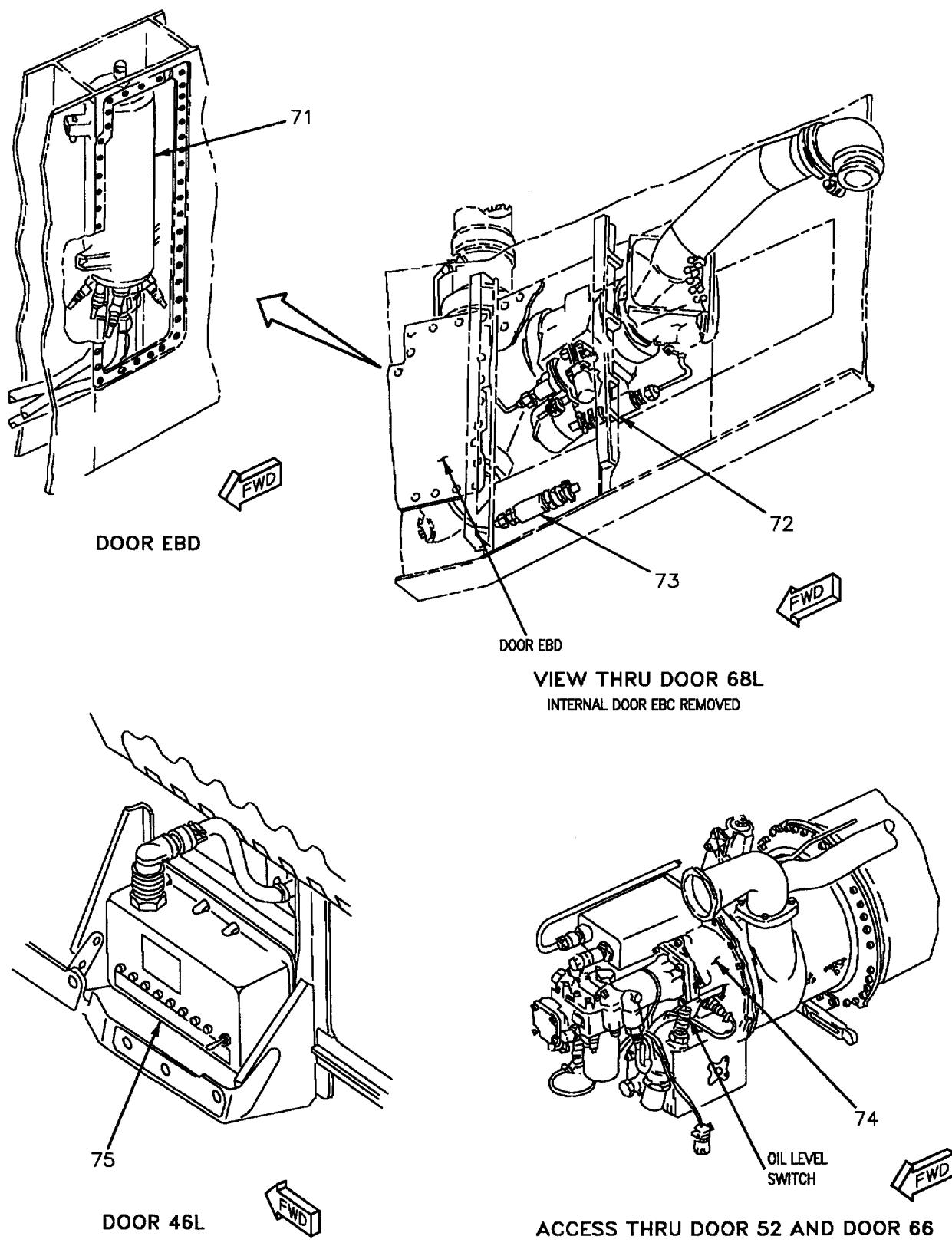
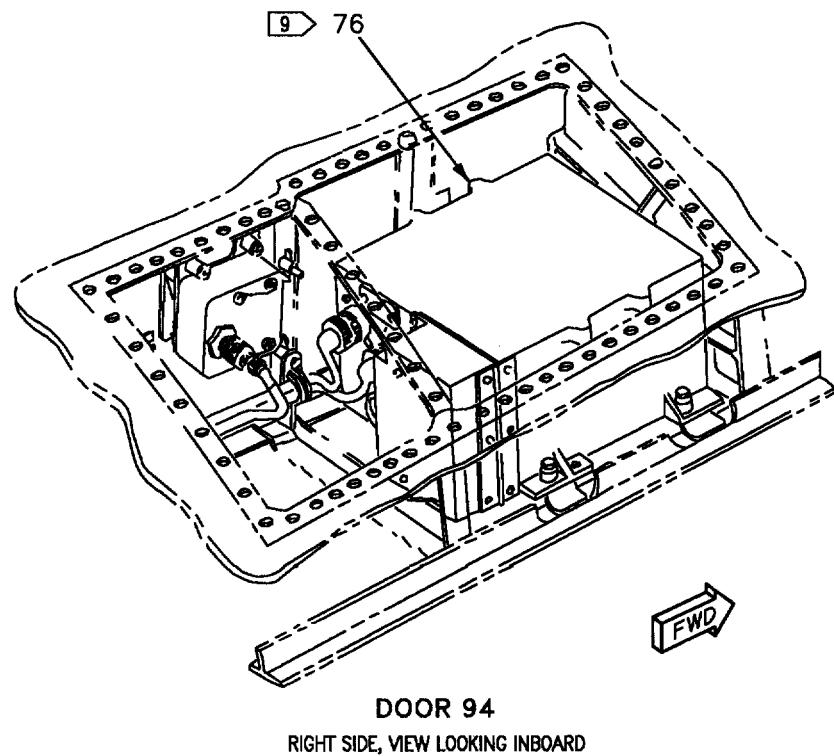
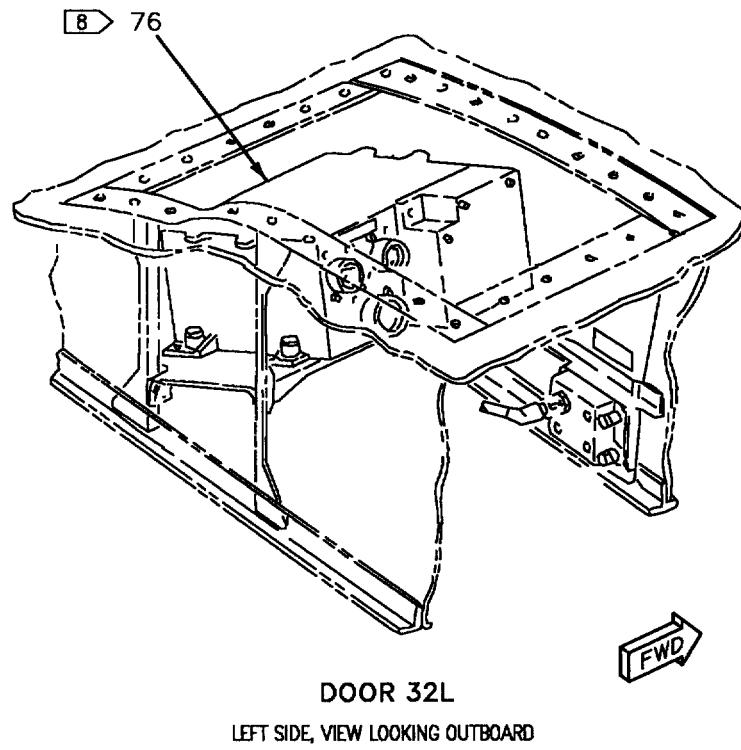


Figure 1. Component Locator (Sheet 14)

**Figure 1. Component Locator (Sheet 15)**

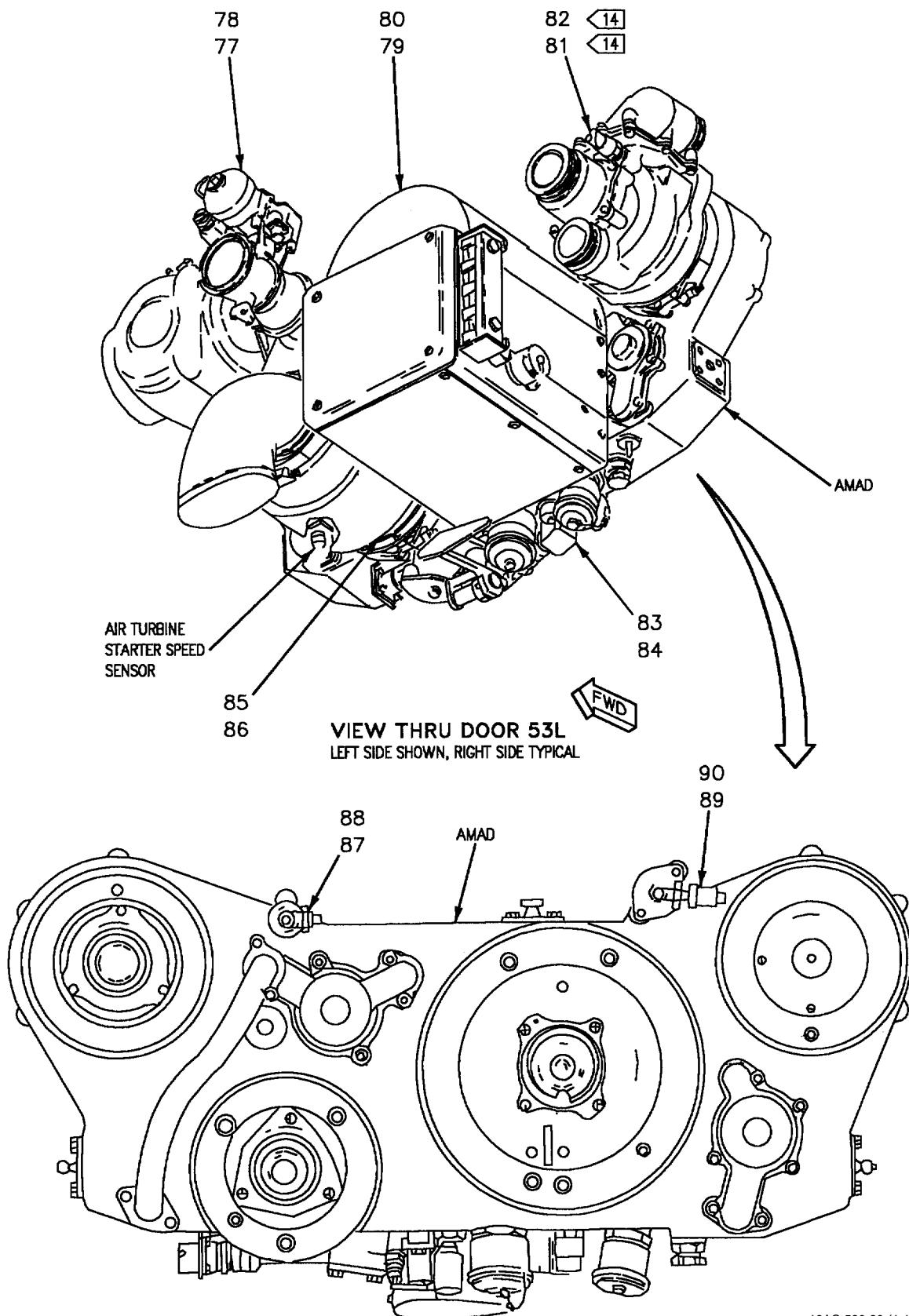


Figure 1. Component Locator (Sheet 16)

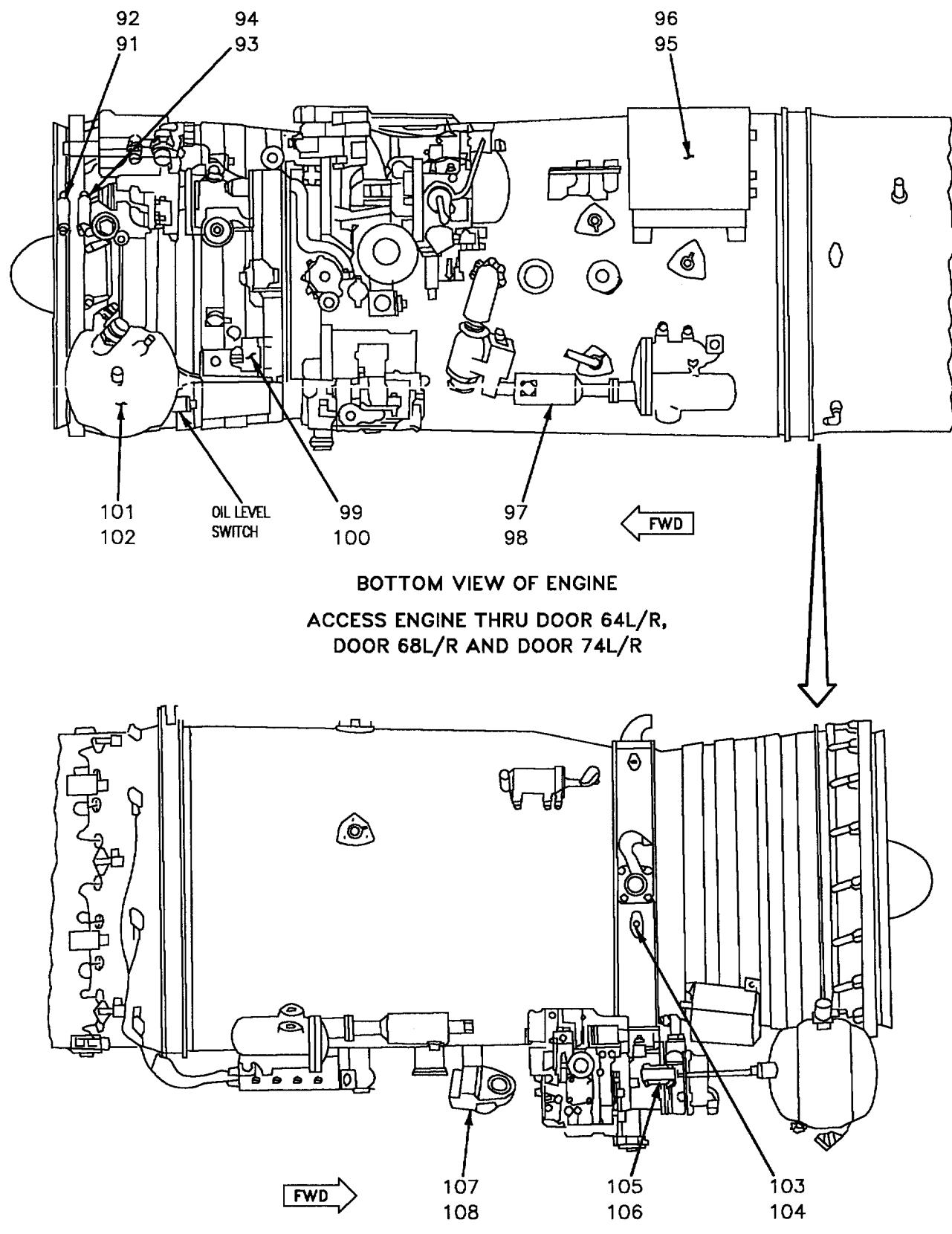


Figure 1. Component Locator (Sheet 17)

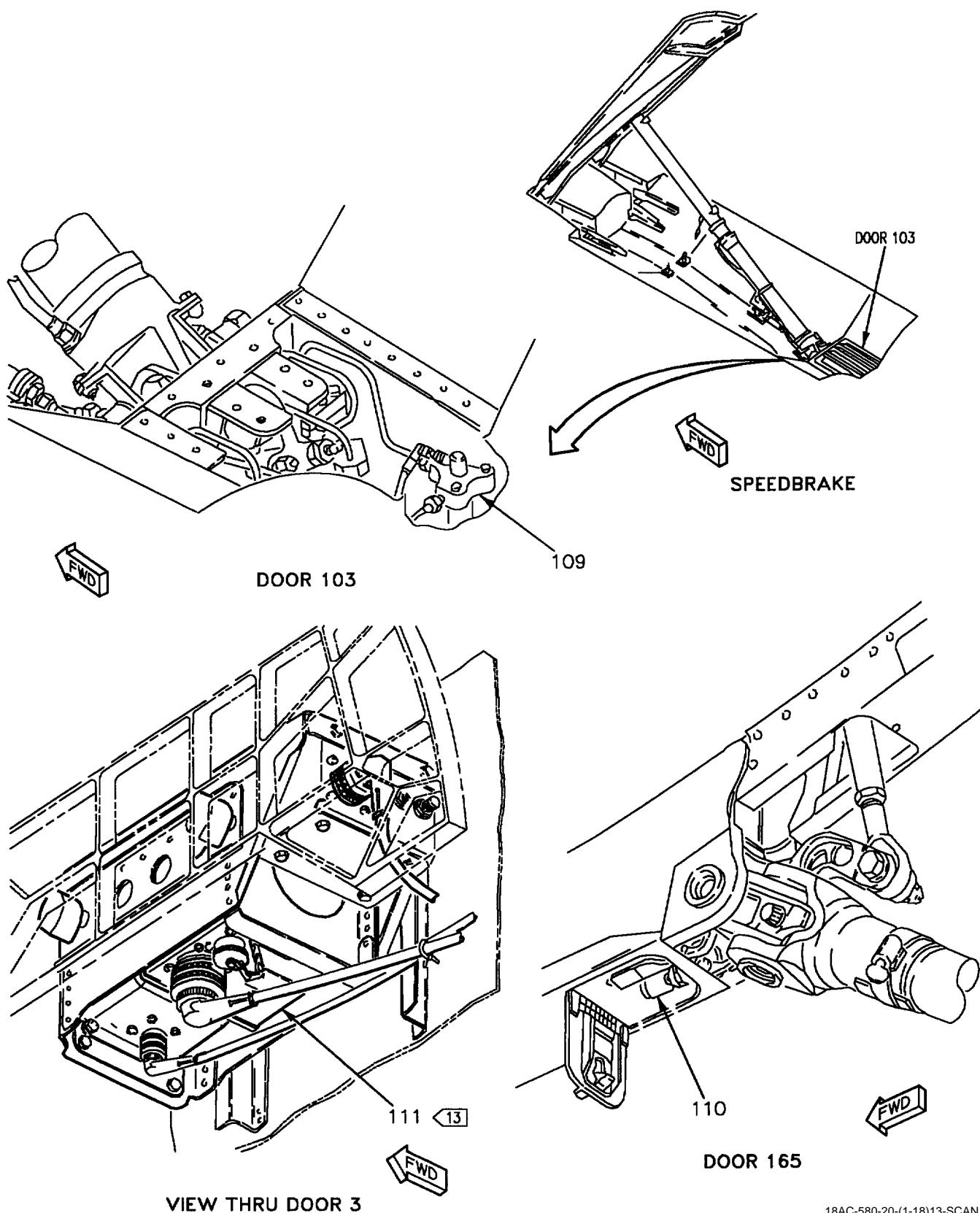
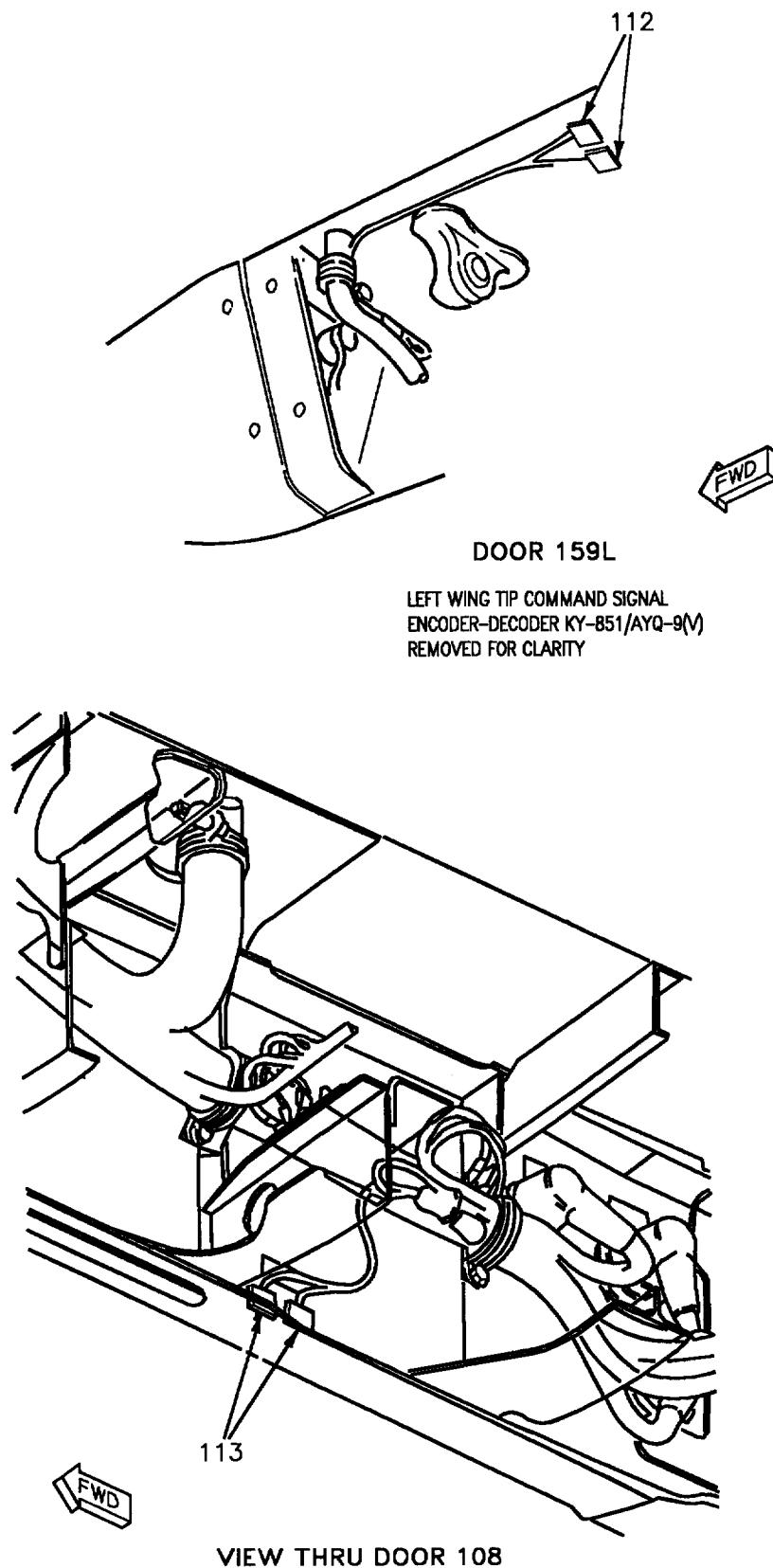
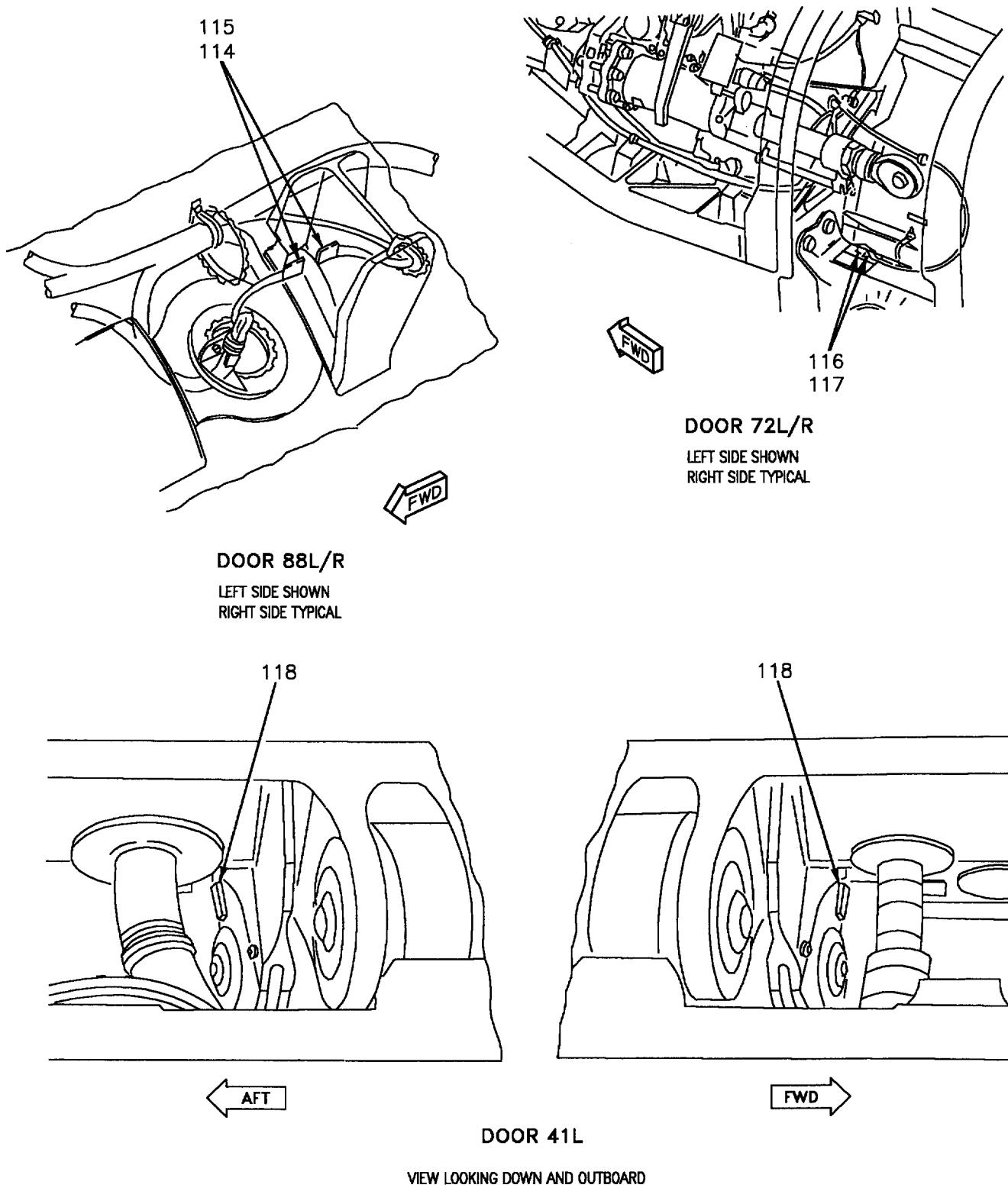


Figure 1. Component Locator (Sheet 18)

**Figure 1. Component Locator (Sheet 19)**

**Figure 1. Component Locator (Sheet 20)**

NOMENCLATURE	INDEX NO.	REF DES
ACS TEMPERATURE/FLOW CONTROLLER	21	22A-D002
AIR PRESSURE SWITCH	69	5S-T106
APU	74	2A-P015
APU ACCUMULATOR AND START VALVE ASSEMBLY	60	2L-P011
APU CONTROL PANEL APU CONTROL SWITCH ENG CRANK SWITCH	12	52A-H079 2S-H003 3S-H003
APU FUEL SHUTOFF VALVE	61	2L-P012
ARRESTING HOOK UP SWITCH	110	19S-S006
BLEED AIR LEAK DETECTION WARNING SYSTEM CONTROL UNIT	75	24A-P011
BOARDING LADDER STOWED SWITCH	40	20S-M009
15 CABIN EXIT AIR REGULATOR CONTROLLER	33	22A-K170
16 CABIN EXIT AIR REGULATOR CONTROLLER	34	22A-L170
CANOPY LOCKED SWITCH	43	20S-E007
CANOPY LOCKED SWITCH	38	20S-L007
CANOPY POSITION SWITCH	42	20S-F008
CANOPY POSITION SWITCH	39	20S-L008
CONTROL-CONVERTER C-10382/A	14	82A-F001
DIGITAL DATA COMPUTER NO. 1	26	83A-E001
DIGITAL DISPLAY INDICATOR ID-2150/ASM-612	37	85A-G003
DRAG BRACE SUPPORT STRAIN GAGE	113	86M-F019
ECS PANEL ASSEMBLY	5	52A-J078
ELECTRICAL BORESIGHT COMPENSATION ASSEMBLY	13	86A-F007
ELECTRONIC CONTROL UNIT	76	2A-M010 2A-N010

Figure 1. Component Locator (Sheet 21)

NOMENCLATURE	INDEX NO.	REF DES
ELECTRONIC EQUIPMENT CONTROL C-10380/ASQ	3	79A-J006
4 ➤ EMERGENCY BATTERY AND CHARGER UNIT	29	1A-C072
EXTERNAL FUEL SYSTEM AIR PRESSURE SWITCH	68	5A-P151
EXTERNAL FUEL SYSTEM AIR PRESSURE SWITCH	67	5A-P152
FIRE EXTINGUISHER TANK	71	4SQT109
FLUID LEVEL INDICATOR AND FLEXIBLE CABLE	55	10M-P010
FLUID LEVEL INDICATOR AND FLEXIBLE CABLE	56	10M-R011
FUEL CROSSFEED SHUTOFF VALVE	64	5B-P071
FUEL DUMP VALVE	70	5B-P069
FUEL FEED LINE TEMPERATURE SENSOR (LH)	65	5A-P111
FUEL FEED LINE TEMPERATURE SENSOR (RH)	66	5A-R112
FUEL QUANTITY INTERMEDIATE DEVICE	15	5A-F014
FUEL SYSTEM CONTROL PANEL	9	5A-H027
GND PWR CONTROL PANEL ASSEMBLY	11	1A-H004
GUN GAS PURGE PRESSURE SWITCH 1	45	61S-B184
GUN GAS PURGE PRESSURE SWITCH 2	44	61S-B185
INLET ICE DETECTOR	57	9A-P005
INTERCOMMUNICATION AMPLIFIER-CONTROL	8	76A-H009
LANDING GEAR CONTROL UNIT	22 111	12A-D004 12A-A004
LEFT AIR TURBINE STARTER	85	3MAP521
LEFT AIR TURBINE STARTER CONTROL VALVE	77	3L-P006

Figure 1. Component Locator (Sheet 22)

NOMENCLATURE	INDEX NO.	REF DES
LEFT AMAD		3MAP515
LEFT AMAD OIL LEVEL SWITCH	83	3S-P059
LEFT AMAD OIL PRESSURE SWITCH	89	3S-P055
LEFT AMAD OIL TEMPERATURE THERMOSTAT	87	3S-P064
LEFT CURRENT FLOW SENSOR	47	28A-B015
LEFT DIGITAL DISPLAY INDICATOR IP-1317()	1	80A-H001
LEFT ENGINE		3MAS551
ALTERNATOR	99	3G-S607
ANTI-ICING VALVE	107	3VAS641
COMPRESSOR DISCHARGE PRESSURE TRANSMITTER	105	3TRS685
ELECTRICAL CONTROL ASSEMBLY	95	3Z-S605
FUEL FLOW TRANSMITTER	87	3TRS647
OIL PRESSURE TRANSMITTER	93	3TRS648
OIL TANK	101	3CAS595
TURBINE DISCHARGE PRESSURE TRANSMITTER	91	3TRS651
VIBRATION ACCELEROMETER	103	3TRS689
LEFT ENGINE FUEL SHUTOFF VALVE	62	5B-P072
14 ➤ LEFT FUEL BOOST PRESSURE SWITCH	81	5S-P113
LEFT GENERATOR CONVERTER UNIT	79	1A-P001
LEFT HORIZONTAL STABILATOR STRAIN GAGE	116	85M-S013
LEFT INLET BLEED AIR DOOR ACTUATOR	53	3B-M028
LEFT POWER CONTACTOR	31	1K-C007
LEFT VERTICAL STABILIZER STRAIN GAGE	114	85M-S011
LEFT WING FOLD STRAIN GAGE	112	85M-U021
LEFT WING ROOT STRAIN GAGE	118	85M-U020
LH ADVISORY AND THREAT WARNING INDICTOR PANEL	2	52A-H073
LH VERTICAL CONSOLE CONTROL PANEL	10	52A-H077
LIQUID OXYGEN QUANTITY INDICATOR GMU-75/A	7	15M-H002

Figure 1. Component Locator (Sheet 23)

NOMENCLATURE	INDEX NO.	REF DES
MAGNETIC TAPE CARTRIDGE MX-9972/ASM-912	17	85A-F501
18 MISSION DATA LOADER MOUNT	41A	85A-K040
20		
18 MISSION DATA LOADER	41B	85A-K503
20		
17 MMP ENABLE/BRCU SWITCH	36	1S-G160
NO. 2 CIRCUIT BREAKER PANEL ASSEMBLY	24	52A-D024
NO. 4 CIRCUIT BREAKER PANEL ASSEMBLY	20	52A-D026
NO. 7 CIRCUIT BREAKER RELAY PANEL ASSEMBLY	32	52A-C057
NO. 8 CIRCUIT BREAKER RELAY PANEL ASSEMBLY	28	52A-C159
NO. 2 RELAY PANEL ASSEMBLY	18	52A-F058
NO. 3 RELAY PANEL ASSEMBLY	27	52A-E059
NO. 4 RELAY PANEL ASSEMBLY	59	52A-N118
13 NO. 9 RELAY PANEL ASSEMBLY	30	52A-C161
PILOT SERVICES CONTROL PANEL ASSEMBLY	6	52A-H083
PRIMARY BLEED AIR OVERPRESSURE SWITCH	72	22S-S019
RADAR LIQUID COOLING CENTRIFUGAL PUMP UNIT	49	22B-M086
RADAR LIQUID COOLING FLUID PRESSURE FILTER	58	22FLA089
RADAR LIQUID COOLING HIGH TEMPERATURE WARNING SENSOR	51	22A-A088
RADAR LIQUID COOLING LOW PRESSURE SENSOR	52	22A-A087
RDR LCS SVCE PANEL ASSEMBLY	48	22A-A090
RIGHT AIR TURBINE STARTER	86	3MAR522
RIGHT AIR TURBINE STARTER CONTROL VALVE	78	3L-R007
RIGHT AMAD		3MAR516
RIGHT AMAD OIL LEVEL SWITCH	84	3S-R060
RIGHT AMAD OIL PRESSURE SWITCH	90	3S-R056

Figure 1. Component Locator (Sheet 24)

NOMENCLATURE	INDEX NO.	REF DES
RIGHT AMAD OIL TEMPERATURE THERMOSTAT	88	3S-R065
RIGHT CURRENT FLOW SENSOR	46	8A-B016
RIGHT DIGITAL DISPLAY INDICATOR IP-1317()	4	80A-J002
RIGHT ENGINE ALTERNATOR	100	3MAT552 3G-T608
ANTI-ICING VALVE	108	3VAT642
COMPRESSOR DISCHARGE PRESSURE TRANSMITTER	106	3TRT686
ELECTRICAL CONTROL ASSEMBLY	96	3Z-T606
FUEL FLOW TRANSMITTER	98	TRT648
OIL PRESSURE TRANSMITTER	94	3TRT650
OIL TANK	102	3CAT596
TURBINE DISCHARGE PRESSURE TRANSMITTER	92	3TRT652
VIBRATION ACCELEROMETER	104	3TRT690
RIGHT ENGINE FUEL SHUTOFF VALVE	63	5B-R070
14 ▶ RIGHT FUEL BOOST PRESSURE SWITCH	82	5S-R114
RIGHT GENERATOR CONVERTER UNIT	80	1A-R002
RIGHT HORIZONTAL STABILATOR STRAIN GAGE	117	85M-T012
RIGHT INLET BLEED AIR DOOR ACTUATOR	54	3B-N033
RIGHT POWER CONTACTOR	23	1K-D008
RIGHT VERTICAL STABILIZER STRAIN GAGE	115	85M-T010
SECONDARY BLEED AIR OVERPRESSURE SWITCH	73	22S-S018
SIGNAL DATA CONVERTER CV-3493/ASM-612	58	85A-N002
SIGNAL DATA RECORDER RO-508/ASM-612	16	85A-F001
SKID CONTROL BOX ASSEMBLY	19	13A-D003
TEMPERATURE COMPENSATED PRESSURE SWITCH	109	19S-T012
TEMPERATURE COMPENSATED PRESSURE SWITCH	35	10S-G009

Figure 1. Component Locator (Sheet 25)

NOMENCLATURE	INDEX NO.	REF DES
14 → UTILITY BATTERY AND CHARGER UNIT	25	1A-D035
WINDSHIELD OVERHEAT TEMPERATURE SENSOR	41	23A-B003

Figure 1. Component Locator (Sheet 26)

LEGEND

1. AIRCRAFT CONNECTOR LOCATIONS ARE SHOWN IN A1-F18A()-WDM-000.

2 ► F/A-18A.

3 ► F/A-18B.

4 ► 161353 THRU 161528 BEFORE F/A-18 AFC 49.

5 ► 161702 AND UP; ALSO 161353 THRU 161528 AFTER F/A-18 AFC 49.

6 ► 161353 THRU 161359.

7 ► 161360 AND UP.

8 ► 161353 THRU 161519 BEFORE F/A-18 AFC 27.

9 ► 161520 AND UP; ALSO 161353 THRU 161519 AFTER F/A-18 AFC 27.

10 ► 161353 THRU 161727.

11 ► 161728 AND UP.

12 ► 161353 THRU 161987 BEFORE F/A-18 AFC 48.

13 ► 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48.

14 ► 163119 AND UP; ALSO 161353 THRU 161924 BEFORE F/A-18 IAFC 056;
OR 161353 THRU 163118 AFTER F/A-18 AFC 70.

15 ► F/A-18A 163092 AND UP.

16 ► F/A-18B 163104 AND UP.

17 ► 163119 AND UP; ALSO 161353 THRU 163118 AFTER F/A-18 AFC 90.

18 ► F/A-18A 162394 THRU 163175 AFTER F/A-18 AFC 253 OR F/A-18 AFC 292.

19 ► F/A-18A BEFORE F/A-18 AFC 253 OR F/A-18 AFC 292 AND F/A-18B.

20 ► F/A-18A/B AFTER F/A-18 AFC 225.

Figure 1. Component Locator (Sheet 27)

**ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TROUBLESHOOTING - SIGNAL DATA RECORDING SET AN/ASM-612
MAINTENANCE STATUS DISPLAY AND RECORDING SYSTEM**

This WP supersedes WP005 00, dated 1 June 1986.

Reference Material

Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000

Alphabetical Index

Subject	Page No.
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Table 4	7
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Table 6	11
Table 7	13
Table 8	15
Table 9	17

Record of Applicable Technical Directives

None

Table 1. Signal Data Converter Fail (Code 167)

Support Equipment Required

None

Materials Required

None

Table 1. Signal Data Converter Fail (Code 167) (Continued)

NOTE		
Maintenance Status Display and Recording System Power Schematic (A1-F18AC-580-500, WP005 00), Fatigue Strain Data Schematic (A1-F18AC-580-500, WP013 00) and Built-in Test Schematic (A1-F18AC-580-500, WP012 00) may be used as an aid while doing this procedure.		
Procedure	No	Yes
 CAUTION		
To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX 1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX 1 scale.		
NOTE		
The question used in logic tree “Does continuity exist” means to test for the items listed below:		
<ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		
a. Do substeps below:		
(1) Remove electrical power (A1-F18AC-LMM-000).		
(2) Open door 14R (A1-F18AC-LMM-010). Disconnect 85P-F001A and 85P-F001B from Signal Data Recorder RO-508/ASM-612.		
(3) Open door 32R (A1-F18AC-LMM-010). Disconnect 85P-N002B and 85P-N002D from Signal Data Converter CV-3493/ASM-612.		

Table 1. Signal Data Converter Fail (Code 167) (Continued)

Procedure	No	Yes
(4) Using time domain reflectometer (A1-F18AC-WRM-000) and WP003 00, table 6, test wiring from: 85P-F001A pin 109 to 85P-N002D pin 115 (TA310) 85P-F001A pin 110 to 85P-N002D pin 116 (TA311) 85P-F001A pin 111 to 85P-N002D pin 113 (TA312) 85P-F001A pin 112 to 85P-N002D pin 114 (TA313) 85P-F001A pin 113 to 85P-N002D pin 103 (TA314) 85P-F001A pin 114 to 85P-N002D pin 104 (TA315) 85P-F001B pin 20 to 85P-N002B pin 99 (TA322) 85P-F001B pin 21 to 85P-N002B pin 100 (TA321) 85P-F001B pin 8 to 85P-N002B pin 77 (TA316) 85P-F001B pin 9 to 85P-N002B pin 78 (TA317)		
(5) Does wiring test good?	b	c
b. Isolate defective wiring (WP003 00, table 6 and A1-F18A()-WDM-000) and do step f	-	-
c. Do substeps below:		
(1) Disconnect 85P-N002A from Signal Data Converter CV-3493/ASM-612 (door 32R).		
(2) Does continuity exist from: 85P-F001A pin 7 to 85P-N002A pin 126 85P-F001A pin 8 to 85P-N002A pin 127?	d	e
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step f	-	-
e. Replace Signal Data Converter CV-3493/ASM-612 (A1-F18AC-580-300, WP003 00) and do step f	-	-
f. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed: (1) Signal data converter (2) 85P-F001A (3) 85P-F001B (4) 85P-N002A (5) 85P-N002B (6) 85P-N002D (7) Door 14R (8) Door 32R	-	-

Table 2. Left Wing Fold Strain Gage (85M-U021) Defective or No Output**Support Equipment Required****NOTE**

Alternate item type designations or part numbers are listed in parentheses.

**Part Number or
Type Designation****Nomenclature**

260-6XLP
(AN/USM-311)

Multimeter

Materials Required

None

NOTE

Fatigue Strain Data Schematic (A1-F18AC-580-500, WP013 00) may be used as an aid when doing this procedure.

For component locator, refer to WP004 00.

Malfunction is caused by one of the items listed below:

Aircraft Wiring
Left Wing Fold Strain Gage
Signal Data Converter CV-3493/ASM-612

Procedure	No	Yes
 To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX 1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX 1 scale.		
NOTE When testing for resistance during this procedure, also test for the items listed below: <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		

Table 2. Left Wing Fold Strain Gage (85M-U021) Defective or No Output (Continued)

Procedure	No	Yes
a. Do substeps below:		
(1) Obtain MI address for reference code IEFWFST table 2 (WP007 00) and do table 1 (WP007 00).		
(2) Does data readout display read in the range of 000000 to 010000 or 177777 to 170000?	b	e
b. Do substeps below:		
(1) Remove electrical power (A1-F18AC-LMM-000).		
(2) Open door 32R (A1-F18AC-LMM-010).		
(3) Disconnect 85P-N002D from Signal Data Converter CV-3493/ASM-612.		
(4) Do the resistance tests below:		
85P-N002D pin 61 to pin 62 (980 to 1020 ohms)		
85P-N002D pin 59 to pin 60 (980 to 1020 ohms)		
85P-N002D pin 59 to pin 61 (735 to 765 ohms)		
85P-N002D pin 59 to pin 62 (735 to 765 ohms)		
85P-N002D pin 60 to pin 62 (735 to 765 ohms)		
85P-N002D pin 60 to pin 61 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	c	d
c. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step f	-	-
d. Reterminant aircraft wiring to backup strain gage 85M-U021 (A1-F18AC-580-300, WP006 00) and do step f	-	-
e. Replace Signal Data Converter CV-3493/ASM-612 (A1-F18AC-580-300, WP003 00) and do step f	-	-
f. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) 85P-N002D		
(2) Door 32R	-	-

Table 3. Left Wing Root Strain Gage (85M-U020) Defective or No Output**Support Equipment Required****NOTE**

Alternate item type designations or part numbers are listed in parentheses.

**Part Number or
Type Designation****Nomenclature**

260-6XLP
(AN/USM-311)

Multimeter

Materials Required

None

NOTE

Fatigue Strain Data Schematic (A1-F18AC-580-500, WP013 00) may be used as an aid when doing this procedure.

For component locator, refer to WP004 00.

Malfunction is caused by one of the items listed below:

Aircraft Wiring
Left Wing Root Strain Gage
Signal Data Converter CV-3493/ASM-612

Procedure	No	Yes
 To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX 1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX 1 scale.		
NOTE When testing for resistance during this procedure, also test for the items listed below: <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		

Table 3. Left Wing Root Strain Gage (85M-U020) Defective or No Output (Continued)

Procedure	No	Yes
a. Do substeps below:		
(1) Obtain MI address for reference code IEWRST table 2 (WP007 00) and do table 1 (WP007 00).		
(2) Does data readout display read in the range of 000000 to 010000 or 177777 to 170000?	b	e
b. Do substeps below:		
(1) Remove electrical power (A1-F18AC-LMM-000).		
(2) Open door 32R (A1-F18AC-LMM-010).		
(3) Disconnect 85P-N002D from Signal Data Converter CV-3493/ASM-612.		
(4) Do the resistance tests below:		
86P-N002D pin 57 to pin 58 (980 to 1020 ohms)		
85P-N002D pin 55 to pin 56 (980 to 1020 ohms)		
85P-N002D pin 55 to pin 57 (735 to 765 ohms)		
85P-N002D pin 55 to pin 58 (735 to 765 ohms)		
85P-N002D pin 56 to pin 58 (735 to 765 ohms)		
85P-N002D pin 56 to pin 57 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	c	d
c. Isolate defective aircraft wiring (A1-F18AC-WDM-000) and do step f	-	-
d. Reterminate aircraft wiring to backup strain gage 85M-U020 (A1-F18AC-580-300, WP006 00) and do step f	-	-
e. Replace Signal Data Converter CV-3493/ASM-612 (A1-F18AC-580-300, WP003 00) and do step f	-	-
f. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) 85P-N002D		
(2) Door 32R	-	-

Table 4. Drag Brace Support Strain Gage (85M-F019) Defective Or No Output**Support Equipment Required****NOTE**

Alternate item type designations or part numbers are listed in parentheses.

**Part Number or
Type Designation****Nomenclature**

260-6XLP
(AN/USM-311)

Multimeter

Materials Required

None

NOTE

Fatigue Strain Data Schematic (A1-F18AC-580-500, WP013 00) may be used as an aid when doing this procedure.

For component locator, refer to WP004 00.

Malfunction is caused by one of the items listed below:

Aircraft Wiring
Drag Brace Support Strain Gage
Signal Data Converter CV-3493/ASM-612

Procedure	No	Yes
 CAUTION		
To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX 1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX 1 scale.		

NOTE

When testing for resistance during this procedure, also test for the items listed below:

1. Pin to pin test per procedural step.
2. Shorts to ground.
3. Shorts between surrounding pins on connectors.
4. Shorts between shield and conductors.
5. Shield continuity.

**Table 4. Drag Brace Support Strain Gage (85M-F019) Defective Or No Output
(Continued)**

Procedure	No	Yes
a. Do substeps below:		
(1) Obtain MI address for reference code IEFFST table 2 (WP007 00) and do table 1 (WP007 00).		
(2) Does data readout display read in the range of 000000 to 010000 or 177777 to 170000?	b	e
b. Do substeps below:		
(1) Remove electrical power (A1-F18AC-LMM-000).		
(2) Open door 32R (A1-F18AC-LMM-010).		
(3) Disconnect 85P-N002D from Signal Data Converter CV-3493/ASM-612.		
(4) Do the resistance tests below:		
85P-N002D pin 69 to pin 70 (980 to 1020 ohms)		
85P-N002D pin 67 to pin 68 (980 to 1020 ohms)		
85P-N002D pin 67 to pin 69 (735 to 765 ohms)		
85P-N002D pin 67 to pin 70 (735 to 765 ohms)		
85P-N002D pin 68 to pin 70 (735 to 765 ohms)		
85P-N002D pin 68 to pin 69 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	c	d
c. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step f	-	-
d. Reterminant aircraft wiring to backup strain gage 85M-F019 (A1-F18AC-580-300, WP006 00) and do step f	-	-
e. Replace Signal Data Converter CV-3493/ASM-612 (A1-F18AC-580-300, WP003 00) and do step f	-	-
f. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) 85P-N002D		
(2) Door 32R	-	-

Table 5. Left Horizontal Stabilator Strain Gage (85M-S013) Defective or No Output**Support Equipment Required****NOTE**

Alternate item type designations or part numbers are listed in parentheses.

**Part Number or
Type Designation****Nomenclature**

260-6XLP
(AN/USM-311)

Multimeter

Materials Required

None

NOTE

Fatigue Strain Data Schematic (A1-F18AC-580-500, WP013 00) may be used as an aid when doing this procedure.

For component locator, refer to WP004 00.

Malfunction is caused by one of the items listed below:

Aircraft Wiring
Left Horizontal Stabilator Strain Gage
Signal Data Converter CV-3493/ASM-612

Procedure	No	Yes
 CAUTION		
<p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX 1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX 1 scale.</p> <p>NOTE</p> <p>When testing for resistance during this procedure, also test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		

**Table 5. Left Horizontal Stabilator Strain Gage (85M-S013) Defective or No Output
(Continued)**

Procedure	No	Yes
a. Do substeps below:		
(1) Obtain MI address for reference code IELHST table 2 (WP007 00) and do table 1 (WP007 00).		
(2) Does data readout display read in the range of 000000 to 010000 or 177777 to 170000?	b	e
b. Do substeps below:		
(1) Remove electrical power (A1-F18AC-LMM-000).		
(2) Open door 32R (A1-F18AC-LMM-010).		
(3) Disconnect 85P-N002D from Signal Data Converter CV-3493/ASM-612.		
(4) Do the resistance tests below:		
85P-N002D pin 73 to pin 74 (980 to 1020 ohms)		
85P-N002D pin 71 to pin 72 (980 to 1020 ohms)		
85P-N002D pin 71 to pin 73 (735 to 765 ohms)		
85P-N002D pin 71 to pin 74 (735 to 765 ohms)		
85P-N002D pin 72 to pin 74 (735 to 765 ohms)		
85P-N002D pin 72 to pin 73 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	c	d
c. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step f	-	-
d. Reterminate aircraft wiring to backup strain gage 85M-S013 (A1-F18AC-580-300, WP006 00) and do step f	-	-
e. Replace Signal Data Converter CV-3493/ASM-612 (A1-F18AC-580-300, WP003 00) and do step f	-	-
f. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) 85P-N002D		
(2) Door 32R	-	-

Table 6. Right Horizontal Stabilator Strain Gage (85M-T012) Defective Or No Output

Support Equipment Required		
Part Number or Type Designation	Nomenclature	
260-6XLP (AN/USM-311)	Multimeter	
Materials Required		
	None	
NOTE		
Fatigue Strain Data Schematic (A1-F18AC-580-500, WP013 00) may be used as an aid when doing this procedure.		
For component locator, refer to WP004 00.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring Right Horizontal Stabilator Strain Gage Signal Data Converter CV-3493/ASM-612		
Procedure	No	Yes
 To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX 1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX 1 scale.		
NOTE		
When testing for resistance during this procedure, also test for the items listed below:		
1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity.		

**Table 6. Right Horizontal Stabilator Strain Gage (85M-T012) Defective Or No Output
(Continued)**

Procedure	No	Yes
a. Do substeps below:		
(1) Obtain MI address for reference code IERHST table 2 (WP007 00) and do table 1 (WP007 00).		
(2) Does data readout display read in the range of 000000 to 010000 or 177777 to 170000?	b	e
a. Do substeps below:		
(1) Remove electrical power (A1-F18AC-LMM-000).		
(2) Open door 32R (A1-F18AC-LMM-010).		
(3) Disconnect 85P-N002D from Signal Data Converter CV-3493/ASM-612.		
(4) Do the resistance tests below:		
85P-N002D pin 80 to pin 81 (980 to 1020 ohms)		
85P-N002D pin 78 to pin 79 (980 to 1020 ohms)		
86P-N002D pin 78 to pin 80 (735 to 765 ohms)		
85P-N002D pin 78 to pin 81 (735 to 765 ohms)		
85P-N002D pin 79 to pin 81 (735 to 765 ohms)		
85P-N002D pin 79 to pin 80 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	c	d
c. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step f	-	-
d. Reterminate aircraft wiring to backup strain gage 85M-T012 (A1-F18AC-580-300, WP006 00) and do step f	-	-
e. Replace Signal Data Converter CV-3493/ASM-612 (A1-F18AC-580-300, WP003 00) and do step f	-	-
f. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) 85P-N002D		
(2) Door 32R	-	-

Table 7. Left Vertical Stabilizer Strain Gage (85M-S011) Defective or No Output**Support Equipment Required****NOTE**

Alternate item type designations or part numbers are listed in parentheses.

**Part Number or
Type Designation****Nomenclature**

260-6XLP
(AN/USM -311)

Multimeter

Materials Required

None

NOTE

Fatigue Strain Data Schematic (A1-F18AC-580-500, WP013 00) may be used as an aid when doing this procedure.

For component locator, refer to WP004 00.

Malfunction is caused by one of the items listed below:

Aircraft Wiring
Left Vertical Stabilizer Strain Gage
Signal Data Converter CV-3493/ASM-612

Procedure	No	Yes
 To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX 1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX 1 scale.		
NOTE When testing for resistance during this procedure, also test for the items listed below: <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		

**Table 7. Left Vertical Stabilizer Strain Gage (85M-S011) Defective or No Output
(Continued)**

Procedure	No	Yes
a. Do substeps below:		
(1) Obtain MI address for reference code IELVST table 2 (WP007 00) and do table 1 (WP007 00).		
(2) Does data readout display read in the range of 000000 to 010000 or 177777 to 170000?	b	e
b. Do substeps below:		
(1) Remove electrical power (A1-F18AC-LMM-000).		
(2) Open door 32R (A1-F18AC-LMM-010).		
(3) Disconnect 85P-N002D from Signal Data Converter CV-3493/ASM-612.		
(4) Do the resistance tests below:		
85P-N002D pin 84 to pin 85 (980 to 1020 ohms)		
85P-N002D pin 82 to pin 83 (980 to 1020 ohms)		
85P-N002D pin 82 to pin 84 (735 to 765 ohms)		
85P-N002D pin 82 to pin 85 (735 to 765 ohms)		
85P-N002D pin 83 to pin 85 (735 to 765 ohms)		
85P-N002D pin 83 to pin 84 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	c	d
c. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step f	-	-
d. Reterminant aircraft wiring to backup strain gage 85M-S011 (A1-F18AC-580-300, WP006 00) and do step f	-	-
e. Replace Signal Data Converter CV-3493/ASM-612 (A1-F18AC-580-300, WP003 00) and do step f	-	-
f. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) 85P-N002D		
(2) Door 32R	-	-

Table 8. Right Vertical Stabilizer Strain Gage (85M-T010) Defective Or No Output**Support Equipment Required****NOTE**

Alternate item type designations or part numbers are listed in parentheses.

**Part Number or
Type Designation****Nomenclature**

260-6XLPMultimeter
(AN/USM-311)

Materials Required

None

NOTE

Fatigue Strain Data Schematic (A1-F18AC-580-500, WP013 00) may be used as an aid when doing this procedure.

For component locator, refer to WP004 00.

Malfunction is caused by one of the items listed below:

Aircraft Wiring
Right Vertical Stabilizer Strain Gage
Signal Data Converter CV-3493/ASM-612

Procedure	No	Yes
 To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX 1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX 1 scale.		
NOTE When testing for resistance during this procedure, also test for the items listed below: <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		

**Table 8. Right Vertical Stabilizer Strain Gage (85M-T010) Defective Or No Output
(Continued)**

Procedure	No	Yes
a. Do substeps below:		
(1) Obtain MI address for reference code IERVST table 2 (WP007 00) and do table 1 (WP007 00).		
(2) Does data readout display read in the range of 000000 to 010000 or 177777 to 170000?	b	e
b. Do substeps below:		
(1) Remove electrical power (A1-F18AC-LMM-000).		
(2) Open door 32R (A1-F18AC-LMM-010).		
(3) Disconnect 85P-N002D from Signal Data Converter CV-3493/ASM-612.		
(4) Do the resistance tests below:		
85P-N002D pin 91 to pin 92 (980 to 1020 ohms)		
85P-N002D pin 89 to pin 90 (980 to 1020 ohms)		
85P-N002D pin 89 to pin 91 (735 to 765 ohms)		
85P-N002D pin 89 to pin 92 (735 to 765 ohms)		
85P-N002D pin 90 to pin 92 (735 to 765 ohms)		
85P-N002D pin 90 to pin 91 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	c	d
c. Isolate defective aircraft wiring (A1-F18AC()-WDM-000) and do step f	-	-
d. Reterminate aircraft wiring to backup strain gage 85M-T010 (A1-F18AC-580-300, WP006 00) and do step f	-	-
e. Replace Signal Data Converter CV-3493/ASM-612 (A1-F18AC-580-300, WP003 00) and do step f	-	-
f. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) 85P-N002D		
(2) Door 32R	-	-

Table 9. Code 169**Support Equipment Required****NOTE**

Alternate item type designations or part numbers are listed in parentheses.

**Part Number or
Type Designation****Nomenclature**

260-6XLP
(AN/USM-311)

Multimeter

Materials Required

None

NOTE

Interconnect Schematic (A1-F18AC-580-500, WP004 00) and Fatigue Strain Data Schematic (A1-F18AC-580-500, WP013 00) may be used as an aid when doing this procedure.

For component locator, refer to WP004 00.

Malfunction is caused by one of the items listed below:

Aircraft Wiring
Drag Brace Support Strain Gage
Left Horizontal Stabilizer Strain Gage
Left Vertical Stabilizer Strain Gage
Left Wing Fold Strain Gage
Left Wing Root Strain Gage
Right Horizontal Stabilizer Strain Gage
Right Vertical Stabilizer Strain Gage
Signal Data Converter CV-3493/ASM-612

Procedure	No	Yes
 <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX 1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX 1 scale.</p>		

Table 9. Code 169 (Continued)

Procedure	NOTE	No	Yes
	When testing for resistance or continuity during this procedure, also test for the items listed below:		
	<ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. Do substeps below:			
(1) Remove electrical power (A1-F18AC-LMM-000).			
(2) Open door 32R (A1-F18AC-LMM-010).			
(3) Disconnect 85P-N002D from Signal Data Converter CV-3493/ASM-612.			
(4) Does continuity exist from:			
85P-N002D pin 94 to 85P-N002D pin 95			
85P-N002D pin 98 to 85P-N002D pin 99			
85P-N002D pin 105 to 85P-N002D pin 106			
85P-N002D pin 109 to 85P-N002D pin 110?	b	c	
b. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step af	-	-	
c. Do the resistance tests below:			
85P-N002D pin 91 to pin 92 (980 to 1020 ohms)			
85P-N002D pin 89 to pin 90 (980 to 1020 ohms)			
85P-N002D pin 89 to pin 91 (735 to 765 ohms)			
85P-N002D pin 89 to pin 92 (735 to 765 ohms)			
85P-N002D pin 90 to pin 92 (735 to 765 ohms)			
85P-N002D pin 90 to pin 91 (735 to 765 ohms)			
Are all of the resistance indications in tolerance?	d	g	
d. Are all of the resistance indications out of tolerance?	e	f	
e. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step af	-	-	
f. Reterminant aircraft wiring to backup strain gage 85M-T010 (A1-F18AC-580-300, WP006 00) and do step af	-	-	

Table 9. Code 169 (Continued)

Procedure	No	Yes
g. Do the resistance tests below: 85P-N002D pin 84 to pin 85 (980 to 1020 ohms) 85P-N002D pin 82 to pin 83 (980 to 1020 ohms) 85P-N002D pin 82 to pin 84 (735 to 765 ohms) 85P-N002D pin 82 to pin 85 (735 to 765 ohms) 85P-N002D pin 83 to pin 85 (735 to 765 ohms) 85P-N002D pin 83 to pin 84 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	h	k
h. Are all of the resistance indications out of tolerance?	i	j
i. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step af	-	-
j. Reterminant aircraft wiring to backup strain gage 85M-S011 (A1-F18AC-580-300, WP006 00) and do step af	-	-
k. Do the resistance tests below: 85P-N002D pin 80 to pin 81 (980 to 1020 ohms) 85P-N002D pin 78 to pin 79 (980 to 1020 ohms) 85P-N002D pin 78 to pin 80 (735 to 765 ohms) 85P-N002D pin 78 to pin 81 (735 to 765 ohms) 85P-N002D pin 79 to pin 81 (735 to 765 ohms) 85P-N002D pin 79 to pin 80 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	l	o
l. Are all of the resistance indications out of tolerance?	m	n
m. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step af	-	-
n. Reterminant aircraft wiring to backup strain gage 85M-T012 (A1-F18AC-580-300, WP006 00) and do step af	-	-
o. Do the resistance tests below: 85P-N002D pin 73 to pin 74 (980 to 1020 ohms) 85P-N002D pin 71 to pin 72 (980 to 1020 ohms) 85P-N002D pin 71 to pin 73 (735 to 765 ohms) 85P-N002D pin 71 to pin 74 (735 to 765 ohms) 85P-N002D pin 72 to pin 74 (735 to 765 ohms) 85P-N002D pin 72 to pin 73 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	p	s
p. Are all of the resistance indications out of tolerance?	q	r
q. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step af	-	-

Table 9. Code 169 (Continued)

Procedure	No	Yes
r. Reterminant aircraft wiring to backup strain gage 85M-S013 (A1-F18AC-580-300, WP006 00) and do step af	-	-
s. Do the resistance tests below:		
85P-N002D pin 69 to pin 70 (980 to 1020 ohms) 85P-N002D pin 67 to pin 68 (980 to 1020 ohms) 85P-N002D pin 67 to pin 69 (735 to 765 ohms) 85P-N002D pin 67 to pin 70 (735 to 765 ohms) 85P-N002D pin 68 to pin 70 (735 to 765 ohms) 85P-N002D pin 68 to pin 69 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	t	w
t. Are all of the resistance indications out of tolerance?	u	v
u. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step af	-	-
v. Reterminant aircraft wiring to backup strain gage 85M-F019 (A1-F18AC-580-300, WP006 00) and do step af	-	-
w. Do the resistance tests below:		
85P-N002D pin 57 to pin 58 (980 to 1020 ohms) 85P-N002D pin 55 to pin 56 (980 to 1020 ohms) 85P-N002D pin 55 to pin 57 (735 to 765 ohms) 85P-N002D pin 55 to pin 58 (735 to 765 ohms) 85P-N002D pin 56 to pin 58 (735 to 765 ohms) 85P-N002D pin 56 to pin 57 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	x	aa
x. Are all of the resistance indications out of tolerance?	y	z
y. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step af	-	-
z. Reterminant aircraft wiring to backup strain gage 85M-U020 (A1-F18AC-580-300, WP006 00) and do step af	-	-
aa. Do the resistance tests below:		
85P-N002D pin 61 to pin 62 (980 to 1020 ohms) 85P-N002D pin 59 to pin 60 (980 to 1020 ohms) 85P-N002D pin 59 to pin 61 (735 to 765 ohms) 85P-N002D pin 59 to pin 62 (735 to 765 ohms) 85P-N002D pin 60 to pin 62 (735 to 765 ohms) 85P-N002D pin 60 to pin 61 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	ab	ae

Table 9. Code 169 (Continued)

Procedure	No	Yes
ab. Are all of the resistance indications out of tolerance?	ac	ad
ac. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step af	-	-
ad. Reterminate aircraft wiring to backup strain gage 85M-U021 (A1-F18AC-580-300, WP006 00) and do step af	-	-
ae. Replace Signal Data Converter CV-3493/ASM-612 (A1-F18AC-580-300, WP003 00) and do step af	-	-
af. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed: (1) 85P-N002D (2) Door 32R	-	-

**ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TROUBLESHOOTING - SIGNAL DATA RECORDING SET AN/ASM-612
MAINTENANCE STATUS DISPLAY AND RECORDING SYSTEM**

Reference Material

Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000

Alphabetical Index

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Record of Applicable Technical Directives

None

Table 1. Code 926

Support Equipment Required

NOTE

Alternate item type designations or part numbers are listed in parentheses.

Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter

Table 1. Code 926 (Continued)

Materials Required

None

NOTE

Interconnect Schematic (A1-F18AC-580-500, WP004 00) may be used as an aid when doing this procedure.

For component locator, refer to WP004 00.

Malfunction is caused by one of the items below:

Aircraft Wiring

Drag Brace Support Strain Gage

Left Horizontal Stabilator Strain Gage

Left Vertical Stabilizer Strain Gage

Left Wing Fold Strain Gage

Left Wing Root Strain Gage

Right Horizontal Stabilator Strain Gage

Right Vertical Stabilizer Strain Gage

Procedure	No	Yes
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To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX 1 scale.

NOTE

When testing for resistance during this procedure, also test for the items listed below:

1. Pin to pin test per procedural step.
 2. Shorts to ground.
 3. Shorts between surrounding pins on connectors.
 4. Shorts between shield and conductors.
 5. Shield continuity.

a. Is Magnetic Tape Cartridge MX-9972/ASM-612 fatigue strain data available? x b

b. Analyze fatigue strain data and do the substeps below for fatigue strain gage circuit indicated to be defective:

(1) Remove electrical power (Al-F18AC-LMM-000).

Table 1. Code 926 (Continued)

Procedure	No	Yes
(2) Open door 32R (A1-F18AC-LMM-010).		
(3) Disconnect 85P-N002D from Signal Data Converter CV-3493/ASM-612.		
(4) Right vertical stabilizer strain gage circuit, do step c.		
(5) Left vertical stabilizer strain gage circuit, do step f.		
(6) Right horizontal stabilizer strain gage circuit, do step i.		
(7) Left horizontal stabilizer strain gage circuit, do step l.		
(8) Drag brace support strain gage circuit, do step o.		
(9) Left wing root strain gage circuit, do step r.		
(10) Left wing fold strain gage circuit, do step u	-	-
c. Do the resistance tests below:		
85P-N002D pin 91 to pin 92 (980 to 1020 ohms)		
85P-N002D pin 89 to pin 90 (980 to 1020 ohms)		
85P-N002D pin 89 to pin 91 (735 to 765 ohms)		
85P-N002D pin 89 to pin 92 (735 to 765 ohms)		
85P-N002D pin 90 to pin 92 (735 to 765 ohms)		
85P-N002D pin 90 to pin 91 (735 to 765 ohms)		
Are all of the resistance indications out of tolerance?	d	e
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step ay	-	-
e. Rereminate aircraft wiring to backup strain gage 85M-T010 (A1-F18AC-580-300, WP006 00) and do step ay	-	-
f. Do the resistance tests below:		
85P-N002D pin 84 to pin 85 (980 to 1020 ohms)		
85P-N002D pin 82 to pin 83 (980 to 1020 ohms)		
85P-N002D pin 82 to pin 84 (735 to 765 ohms)		
85P-N002D pin 82 to pin 85 (735 to 765 ohms)		
85P-N002D pin 83 to pin 85 (735 to 765 ohms)		
85P-N002D pin 83 to pin 84 (735 to 765 ohms)		
Are all of the resistance indications out of tolerance?	g	h
g. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step ay	-	-
h. Rereminate aircraft wiring to backup strain gage 85M-S011 (A1-F18AC-580-300, WP006 00) and do step ay	-	-

Table 1. Code 926 (Continued)

Procedure	No	Yes
i. Do the resistance tests below: 85P-N002D pin 80 to pin 81 (980 to 1020 ohms) 85P-N002D pin 78 to pin 79 (980 to 1020 ohms) 85P-N002D pin 78 to pin 80 (735 to 765 ohms) 85P-N002D pin 78 to pin 81 (735 to 765 ohms) 85P-N002D pin 79 to pin 81 (735 to 765 ohms) 85P-N002D pin 79 to pin 80 (735 to 765 ohms)		
Are all of the resistance indications out of tolerance?	j	k
j. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step ay	-	-
k. Reterminant aircraft wiring to backup strain gage 85M-T012 (A1-F18AC-580-300, WP006 00) and do step ay	-	-
i. Do the resistance tests below: 85P-N002D pin 73 to pin 74 (980 to 1020 ohms) 85P-N002D pin 71 to pin 72 (980 to 1020 ohms) 85P-N002D pin 71 to pin 73 (735 to 765 ohms) 85P-N002D pin 71 to pin 74 (735 to 765 ohms) 85P-N002D pin 72 to pin 74 (735 to 765 ohms) 85P-N002D pin 72 to pin 73 (735 to 765 ohms)		
Are all of the resistance indications out of tolerance?	m	n
m. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step ay	-	-
n. Reterminant aircraft wiring to backup strain gage 85M-S013 (A1-F18AC-580-300, WP006 00) and do step ay	-	-
o. Do the resistance tests below: 85P-N002D pin 69 to pin 70 (980 to 1020 ohms) 85P-N002D pin 67 to pin 68 (980 to 1020 ohms) 85P-N002D pin 67 to pin 69 (735 to 765 ohms) 85P-N002D pin 67 to pin 70 (735 to 765 ohms) 85P-N002D pin 68 to pin 70 (735 to 765 ohms) 85P-N002D pin 68 to pin 69 (735 to 765 ohms)		
Are all of the resistance indications out of tolerance?	p	q
p. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step ay	-	-
q. Reterminant aircraft wiring to backup strain gage 85M-F019 (A1-F18AC-580-300, WP006 00) and do step ay	-	-

Table 1. Code 926 (Continued)

Procedure	No	Yes
r. Do substeps below: 85P-N002D pin 57 to pin 58 (980 to 1020 ohms) 85P-N002D pin 55 to pin 56 (980 to 1020 ohms) 85P-N002D pin 55 to pin 57 (735 to 765 ohms) 85P-N002D pin 55 to pin 58 (735 to 765 ohms) 85P-N002D pin 56 to pin 58 (735 to 765 ohms) 85P-N002D pin 56 to pin 57 (735 to 765 ohms)		
Are all of the resistance indications out of tolerance?	s	t
s. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step ay	-	-
t. Reterminant aircraft wiring to backup strain gage 85M-U020 (A1-F18AC-580-300, WP006 00) and do step ay	-	-
u. Do the resistance tests below: 85P-N002D pin 61 to pin 62 (980 to 1020 ohms) 85P-N002D pin 59 to pin 60 (980 to 1020 ohms) 85P-N002D pin 59 to pin 61 (735 to 765 ohms) 85P-N002D pin 59 to pin 62 (735 to 765 ohms) 85P-N002D pin 60 to pin 62 (735 to 765 ohms) 85P-N002D pin 60 to pin 61 (735 to 765 ohms)		
Are all of the resistance indications out of tolerance?	v	w
v. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step ay	-	-
w. Rterminant aircraft wiring to backup strain gage 85M-U021 (A1-F18AC-580-300, WP00600) and do step ay	-	-
x. Do substeps below: (1) Remove electrical power (A1-F18AC-LMM-000). (2) Open door 32R (A1-F18AC-LMM-010). (3) Disconnect 85P-N002D from Signal Data Converter CV-3493/ASM-612. (4) Do the resistance tests below: 85P-N002D pin 91 to pin 92 (980 to 1020 ohms) 85P-N002D pin 89 to pin 90 (980 to 1020 ohms) 85P-N002D pin 89 to pin 91 (735 to 765 ohms) 85P-N002D pin 89 to pin 92 (735 to 765 ohms) 85P-N002D pin 90 to pin 92 (735 to 765 ohms) 85P-N002D pin 90 to pin 91 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	y	ab

Table 1. Code 926 (Continued)

Procedure	No	Yes
y. Are all of the resistance indications out of tolerance?	z	aa
z. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step ay	-	-
aa. Reterminant aircraft wiring to backup strain gage 85M-T010 (A1-F18AC-580-300, WP006 00) and do step ay	-	-
ab. Do the resistance tests below: 85P-N002D pin 84 to pin 85 (980 to 1020 ohms) 85P-N002D pin 82 to pin 83 (980 to 1020 ohms) 85P-N002D pin 82 to pin 84 (735 to 765 ohms) 85P-N002D pin 82 to pin 85 (735 to 765 ohms) 85P-N002D pin 83 to pin 85 (735 to 765 ohms) 85P-N002D pin 83 to pin 84 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	ac	af
ac. Are all of the resistance indications out of tolerance?	ad	ae
ad. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step ay	-	-
ae. Rterminant aircraft wiring to backup strain gage 85M-S011 (A1-F18AC-580-300, WP006 00) and do step ay	-	-
af. Do the resistance tests below: 85P-N002D pin 80 to pin 81 (980 to 1020 ohms) 85P-N002D pin 78 to pin 79 (980 to 1020 ohms) 85P-N002D pin 78 to pin 80 (735 to 765 ohms) 85P-N002D pin 78 to pin 81 (735 to 765 ohms) 85P-N002D pin 79 to pin 81 (735 to 765 ohms) 85P-N002D pin 79 to pin 80 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	ag	aj
ag. Are all of the resistance indications out of tolerance?	ah	ai
ah. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step ay	-	-
ai. Rterminant aircraft wiring to backup strain gage 85M-T012 (A1-F18AC-580-300, WP006 00) and do step ay	-	-

Table 1. Code 926 (Continued)

Procedure	No	Yes
aj. Do the resistance tests below: 85P-N002D pin 73 to pin 74 (980 to 1020 ohms) 85P-N002D pin 71 to pin 72 (980 to 1020 ohms) 85P-N002D pin 71 to pin 73 (735 to 765 ohms) 85P-N002D pin 71 to pin 74 (735 to 765 ohms) 85P-N002D pin 72 to pin 74 (735 to 765 ohms) 85P-N002D pin 72 to pin 73 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	ak	an
ak. Are all of the resistance indications out of tolerance?	al	am
al. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step ay	-	-
am. Reterminant aircraft wiring to backup strain gage 85M-S013 (A1-F18AC-580-300, WP006 00) and do step ay	-	-
an. Do the resistance tests below: 85P-N002D pin 69 to pin 70 (980 to 1020 ohms) 85P-N002D pin 67 to pin 68 (980 to 1020 ohms) 85P-N002D pin 67 to pin 69 (735 to 765 ohms) 85P-N002D pin 67 to pin 70 (735 to 765 ohms) 85P-N002D pin 68 to pin 70 (735 to 765 ohms) 85P-N002D pin 68 to pin 69 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	ao	ar
ao. Are all of the resistance indications out of tolerance?	ap	aq
ap. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step ay	-	-
aq. Reterminant aircraft wiring to backup strain gage 85M-F019 (A1-F18AC-580-300, WP006 00) and do step ay	-	-
ar. Do resistance tests below: 85P-N002D pin 57 to pin 58 (980 to 1020 ohms) 85P-N002D pin 55 to pin 56 (980 to 1020 ohms) 85P-N002D pin 55 to pin 57 (735 to 765 ohms) 85P-N002D pin 55 to pin 58 (735 to 765 ohms) 85P-N002D pin 56 to pin 58 (735 to 765 ohms) 85P-N002D pin 56 to pin 57 (735 to 765 ohms)		
Are all of the resistance indications in tolerance?	as	av
as. Are all of the resistance indications out of tolerance?	at	au
at. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step ay	-	-

Table 1. Code 926 (Continued)

Procedure	No	Yes
au. Reterminate aircraft wiring to backup strain gage 85M-U020 (A1-F18AC-580-300, WP006 00) and do step ay	-	-
av. Do the resistance tests below: 85P-N002D pin 61 to pin 62 (980 to 1020 ohms) 85P-N002D pin 59 to pin 60 (980 to 1020 ohms) 85P-N002D pin 59 to pin 61 (735 to 765 ohms) 85P-N002D pin 59 to pin 62 (735 to 765 ohms) 85P-N002D pin 60 to pin 62 (735 to 765 ohms) 85P-N002D pin 60 to pin 61 (735 to 765 ohms)		
Are all of the resistance indications out of tolerance?	aw	ax
aw. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step ay	-	-
ax. Reterminate aircraft wiring to backup strain gage 85M-U021 (A1-F18AC-580-300, WP006 00) and do step ay	-	-
ay. If disconnected, removed, or opened during this procedure, make sure items listed below are connected, installed, or closed: (1) 85P-N002D (2) Door 32R	-	-

Table 2. Code 995 Not Displayed When MAINTENANCE CODE DISPLAY Switch Is Pressed After Fluids Test

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	

Table 2. Code 995 Not Displayed When MAINTENANCE CODE DISPLAY Switch Is Pressed After Fluids Test (Continued)

NOTE		
<p>Maintenance Status Display and Recording System Power Schematic and Fluids Test Schematic (A1-F18AC-580-500, WP005 00 and WP006 00) may be used as an aid while doing this procedure.</p> <p>For component locator, refer to WP004 00.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Aircraft Wiring Digital Display Indicator ID-2150/ASM-612 Signal Data Converter CV-3493/ASM-612 Signal Data Converter RO-508/ASM-612</p>		
Procedure	No	Yes
		
<p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX 1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX 1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p> <p>85P-G003A</p>		
NOTE		
<p>The question used in logic tree “Does continuity exist” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. <p>a. Do substeps below:</p> <ol style="list-style-type: none"> (1) Open door 10L (A1-F18AC-LMM-010). (2) On no. 8 circuit breaker/relay panel assembly, open circuit breaker 85CBC004, MSDRS. 		

Table 2. Code 995 Not Displayed When MAINTENANCE CODE DISPLAY Switch Is Pressed After Fluids Test (Continued)

(3) Open door 32R (A1-F18AC-LMM-010).			
(4) Disconnect 85P-N002A from Signal Data Converter CV-3493/ASM-612.			
(5) Does continuity exist from 85P-N002A pin 56 to aircraft ground?	c	b	
b. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step f	-	-	
c. Do substeps below:			
(1) Open door 14R (A1-F18AC-LMM-010).			
(2) Disconnect 85P-F001A from Signal Data Recorder RO-508/ASM-612.			
(3) While pressing nose wheelwell Digital Display Indicator ID-2150/ASM-612 FLUIDS CHECK switch, does continuity exist from 85P-F001A pin 124 to aircraft ground?	b	d	
d. Do substeps below:			
(1) Disconnect 85P-F001B from Signal Data Recorder RO-508/ASM-612.			
(2) Disconnect 85P-G003A from nose wheelwell Digital Display Indicator ID-2150/ASM-612.			
(3) Does continuity exist from: 85P-F001A pin 105 to 85P-G003A pin 28 85P-F001A pin 106 to 85P-G003A pin 27 85P-F001A pin 107 to 85P-G003A pin 26 85P-F001A pin 108 to 85P-G003A pin 25 85P-F001B pin 8 to 85P-G003A pin 32 85P-F001B pin 9 to 85P-G003A pin 31 85P-F001B pin 20 to 85P-G003A pin 30 85P-F001B pin 21 to 85P-G003A pin 29?	b	e	
e. Do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00) and step f	-	-	
f. If disconnected, removed, or opened during procedure, make sure the items listed below are connected, installed, or closed: (1) MSDRS circuit breaker (2) 85P-N002A (3) 85P-F001A (4) 85P-F001B			

Table 2. Code 995 Not Displayed When MAINTENANCE CODE DISPLAY Switch Is Pressed After Fluids Test (Continued)

Procedure	No	Yes
(5) 85P-G003A		
(6) Door 10L		
(7) Door 32R		
(8) Door 14R	-	-

ORGANIZATIONAL MAINTENANCE**TESTING AND TROUBLESHOOTING****MEMORY INSPECT DATA****MAINTENANCE STATUS DISPLAY AND RECORDING SYSTEM**

This WP supersedes WP007 00, dated 1 October 2000.

Reference Material

Line Maintenance Procedures	A1-F18AC-LMM-000
Maintenance Status Display and Recording System	A1-F18AC-580-200
Locator	WP004 00

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Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	-	US Naval Reserves A ⁺ Avionics Upgrade; Incorporation of (ECP MDA-F/A-18-0560R1)	1 Oct 00	-
F/A-18 AFC 292	-	US Marine Corps Reserves A ⁺ Avionics Upgrade; Incorporation of (ECP MDA-F/A-18-0583)	1 Oct 00	-
F/A-18 AFC 225	-	Avionics Multiplex Bus Upgrade; Modification of (ECP MDA-F/A-18-0529)	1 Jun 02	-

1. INTRODUCTION

2. This work package (WP) provides memory inspect (MI) data used in procedures within this manual. This WP is referenced from procedures that use MI.

3. Table 1 provides the common steps used to do MI. These procedures use the unit address and ref code from the procedures that reference this WP to determine the MI address. Table 2 provides ref code to memory inspect address conversion for Operational Flight Program (OFP). CONFIG/IDENT numbers assigned. Table 2 is MC1 (unit address 28).

Table 1. Memory Inspect Procedure**NOTE**

The CONFIG/IDENT number must be known to memory inspect a component. If the CONFIG/IDENT number is not known, refer to A1-F18AC-SCM-000 to determine the CONFIG/IDENT number.

- a. Determine the CONFIG/IDENT number of Digital Data Computer No. 1 (MC1)(A1-F18AC-SCM-000).
- b. Use ref code identified in procedure and CONFIG/IDENT from step a to determine ref code MI address.

NOTE

Figure 1 shows memory inspect displays.

- c. Apply electrical power (A1-F18AC-LMM-000).
- d. On GND PWR control panel assembly, do substeps below:
 - (1) Set and hold 1 switch to A ON and 2 switch to B ON for 3 seconds.
 - (2) Set and hold 3 switch to B ON.
- e. On left and right Digital Display Indicators IP-1317() (LDDI and RDDI), set power switches to DAY or NIGHT and allow 2 minute warmup. Adjust BRT and CONT controls for best display.
- f. On RDDI:
 - (1) Press MENU pushbutton switch.
 - (2) Press BIT pushbutton switch.
 - (3) Press MI pushbutton switch.
- g. On Electronic Equipment Control C-10380/ASQ (equipment control), adjust BRT/DIM control for best display and do substeps below:
 - (1) Verify equipment control displays UNIT and ADDR options.
 - (2) Press UNIT option select switch.
 - (3) Press keyboard switch(s) to enter UNIT address from procedure.
 - (4) Verify scratch pad displays correct UNIT address.
 - (5) Press ENT.

Table 1. Memory Inspect Procedure (Continued)**NOTE**

On RDDI, unit address is a two digit display. When unit address is a single digit, a 0 (zero) is displayed before the unit address. Example - unit address 6 is displayed as 06.

- h. Verify RDDI displays correct unit address.
- i. On equipment control, do substeps below:
 - (1) Press ADDR option keyboard switch.
 - (2) Press keyboard switches to enter applicable ref code MI address.
 - (3) Verify scratch pad displays correct address.
 - (4) Press ENT.

NOTE

On RDDI, ADDR readout is a six digit display. When ref code address is less than six digits, a 0 (zero) is displayed before the address. Example - address 4444 is displayed as 004444.

- j. Verify RDDI displays correct address.

NOTE

DDI DATA readout is 6 octal digits, when an X is indicated in an octal digit location in this procedure, that digit is ignored.

- k. Interpret DATA readout.

NOTE

When memory inspecting more than one address and the address numbers are close, use the address increment/decrement pushbutton switches on MI display to advance/decrease the address. Pressing the increment pushbutton switch increases the address location by one. Pressing the decrement switch decreases the address location by one.

Table 2. Unit Address 28 (MC1) MI Addresses

REF CODE	SOFTWARE CONFIGURATION (CONFIG/IDENT)				
	89A Address	92A Address	10A Address	15C Address	12A Address
BDMUX1	002423	002425	002427	07073405	004226
IEBDCB	035363	035743	036433	07003503	044677
IEWRST	036441	036763	037457	07023066	046347
IEWFST	036442	036764	037460	07023067	046350
IEFFST	036443	036765	037461	07023070	046351
IELHST	036444	036766	037462	07023071	046352
IERHST	036445	036767	037463	07023072	046353
IELVST	036446	036770	037464	07023073	046354
IERVST	036447	036771	037465	07023074	046355

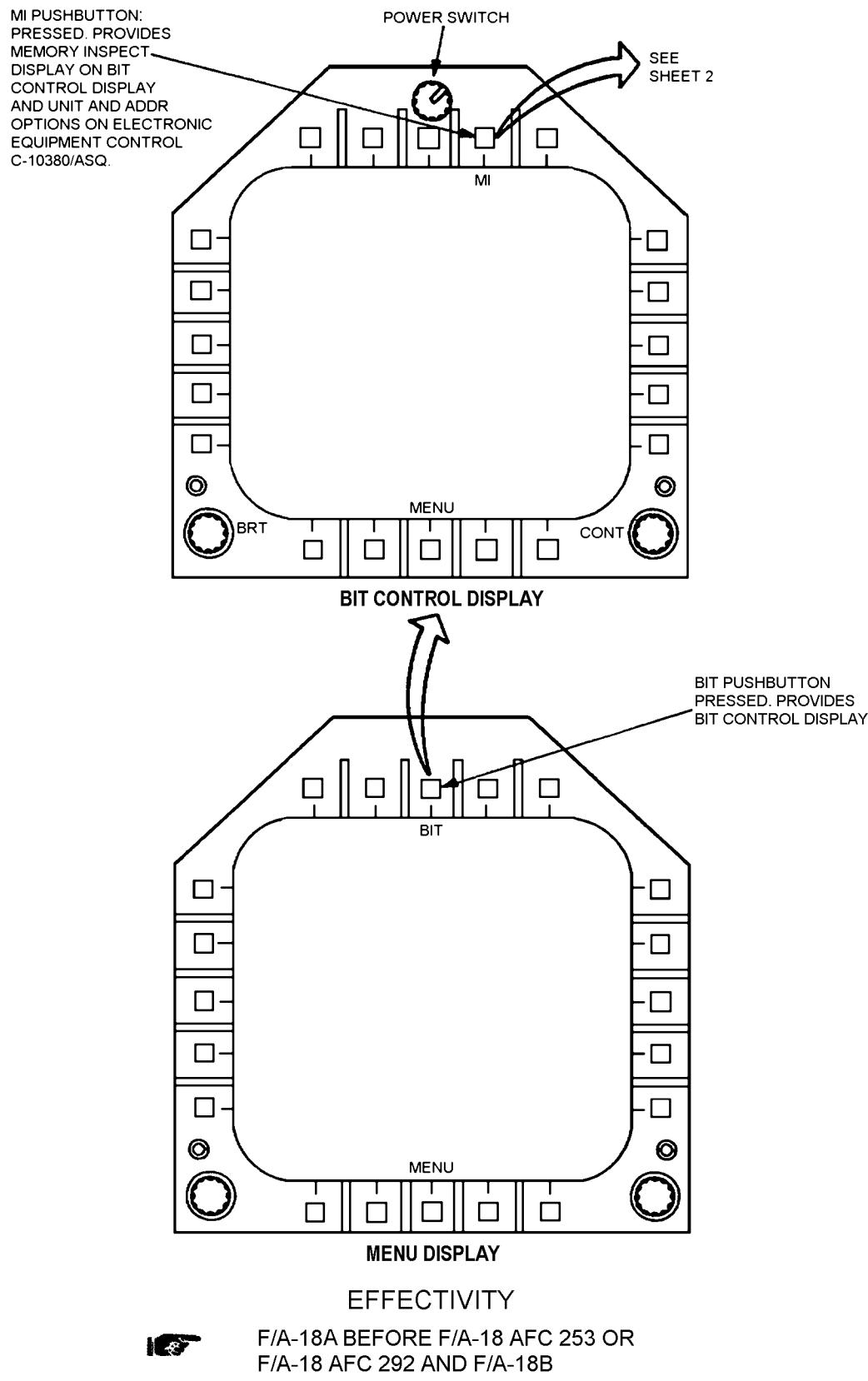
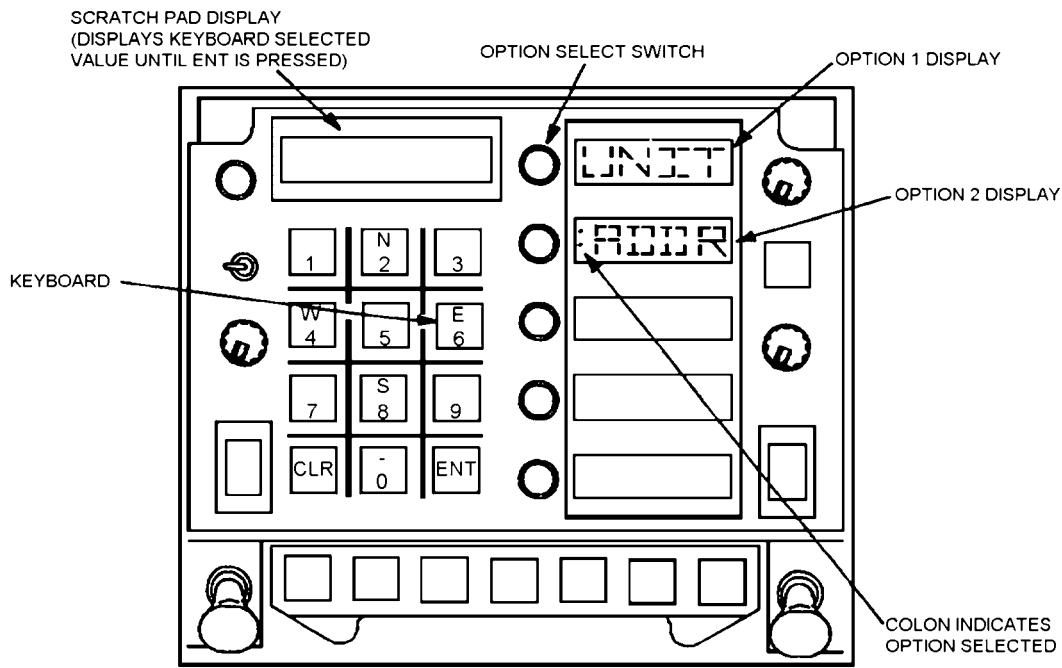
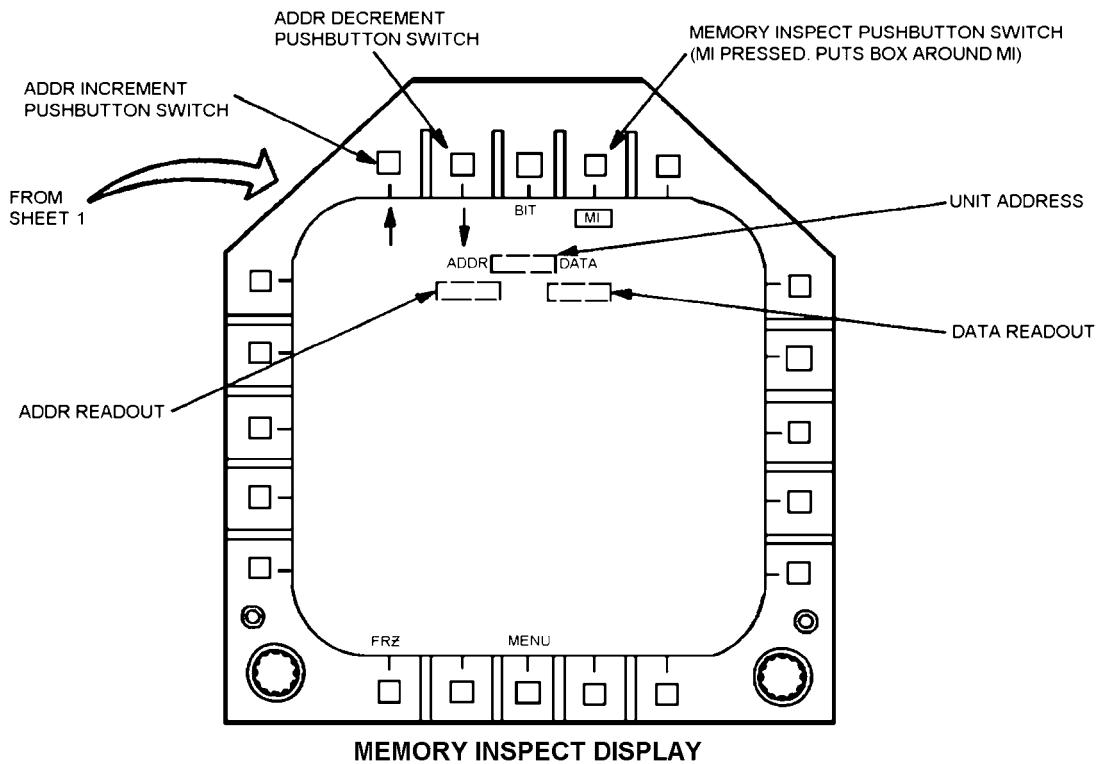


Figure 1. Memory Inspect Displays (Sheet 1)

**LEGEND**

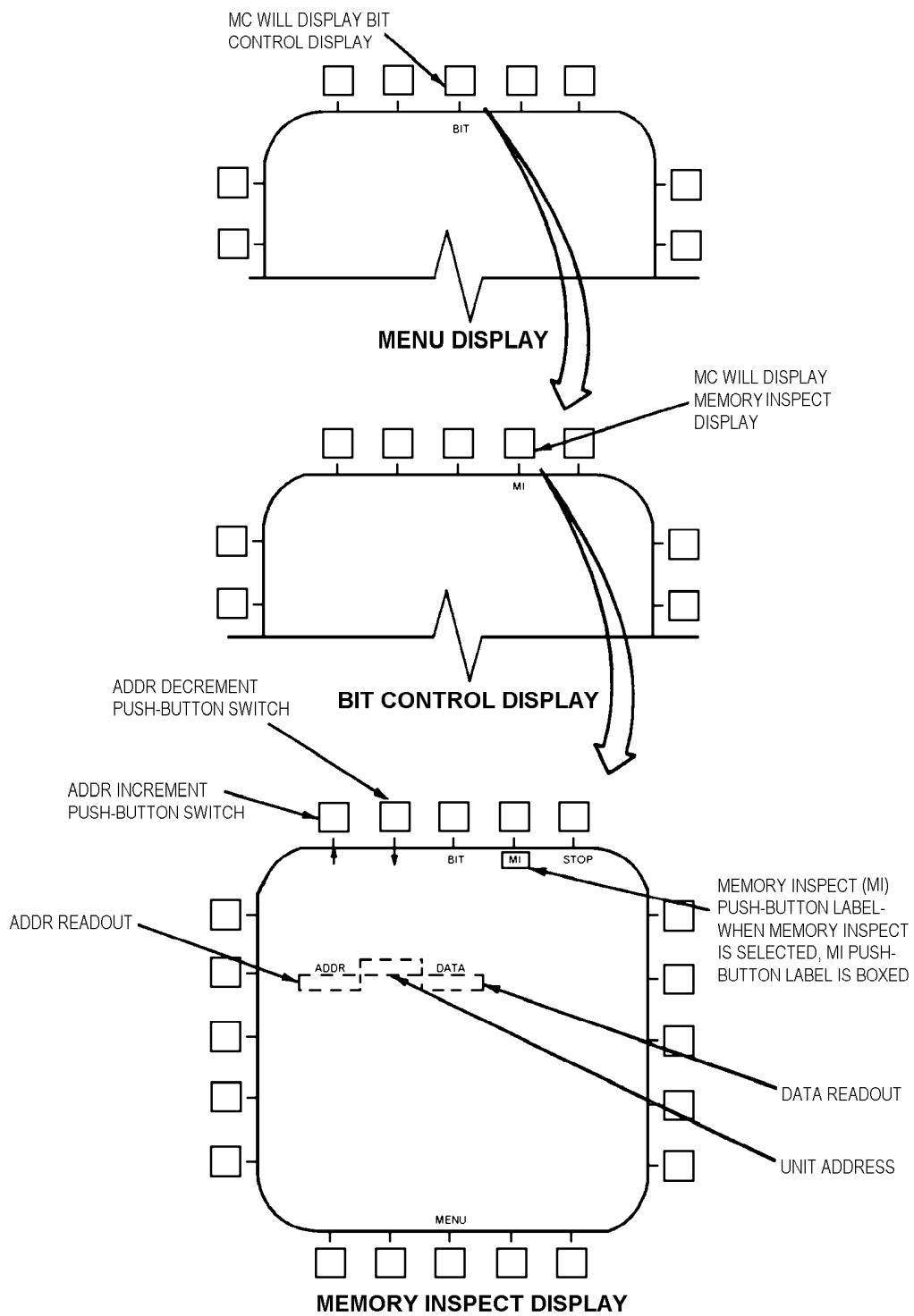
1. WHEN A FUNCTION ON INDICATOR IS SELECTED, SWITCH NOMENCLATURE IS BOXED. PRESSING SWITCH AGAIN WILL DESELECT FUNCTION AND REMOVE BOX AROUND NOMENCLATURE.
2. ADDITIONAL DISPLAYS MAY APPEAR ON INDICATOR BUT ARE NOT USED IN THE TEST.

EFFECTIVITY

F/A-18A BEFORE F/A-18 AFC 253 OR
F/A-18 AFC 292 AND F/A-18B

00700102

Figure 1. Memory Inspect Displays (Sheet 2)



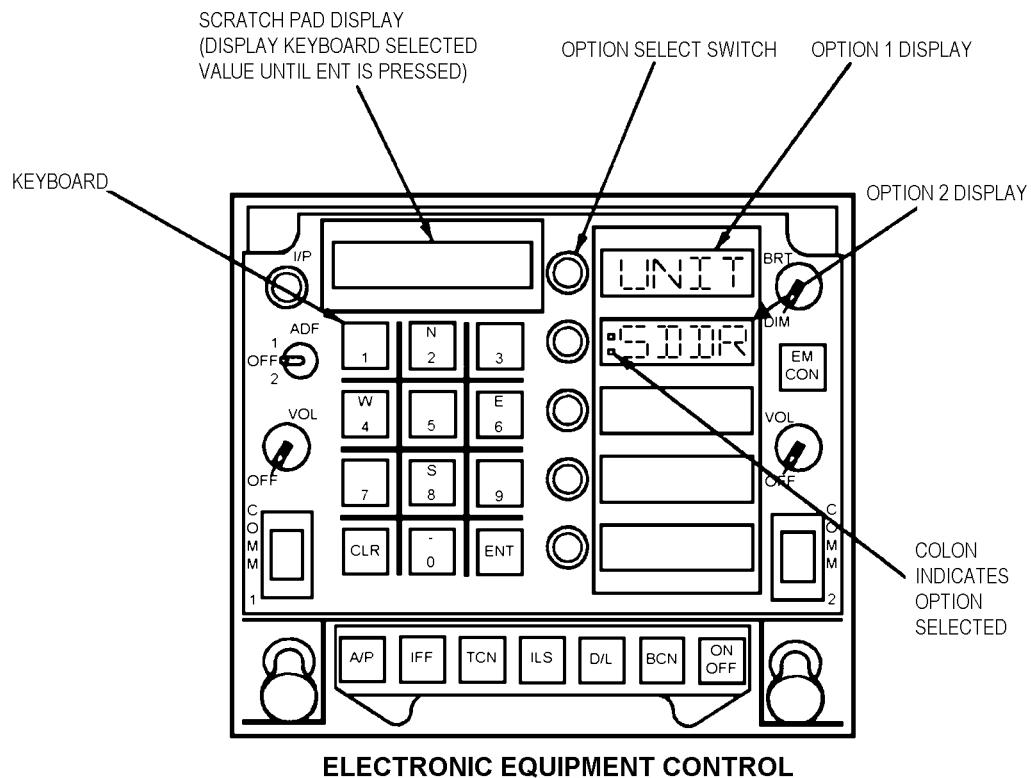
EFFECTIVITY

F/A-18A 162394 THRU 163175 AFTER
 F/A-18 AFC 253 OR F/A-18 AFC 292; ALSO
 F/A-18A/B AFTER F/A-18 AFC 225



00700103

Figure 1. Memory Inspect Displays (Sheet 3)

**LEGEND**

1. WHEN A FUNCTION ON INDICATOR IS SELECTED, SWITCH NOMENCLATURE IS BOXED. PRESSING SWITCH AGAIN WILL DESELECT FUNCTION AND REMOVE BOX AROUND NOMENCLATURE.
2. ADDITIONAL DISPLAYS MAY APPEAR ON INDICATOR BUT ARE NOT USED IN THIS TEST.

EFFECTIVITY

F/A-18 162394 THRU 163175 AFTER
 F/A-18 AFC 253 OR F/A-18 AFC 292; ALSO
 F/A-18A/B AFTER F/A-18 AFC 225

**Figure 1. Memory Inspect Displays (Sheet 4)**

**ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TROUBLESHOOTING MISSION DATA LOADER
MAINTENANCE STATUS DISPLAY AND RECORDING SYSTEM**

Reference Material

Maintenance Status Display and Recording System

Preliminary Steps - Memory Inspect	WP007 00
Line Maintenance Procedures	A1-F18AC-LMM-000
Line Maintenance Access Door	A1-F18AC-LMM-010

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Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	US Naval Reserves A ⁺ Avionics Upgrade; Incorporation of (ECP-MDA-F/A-18-0560R1)	1 Oct 00	TBD
F/A-18 AFC 292	TBD	US Marine Corps Reserves A ⁺ Avionics Upgrade; Incorporation of (ECP-MDA-F/A-18-0583)	1 Oct 00	TBD

Table 1. BIT Status Message Displays NOT RDY

Support Equipment Required

Part Number or Type Designation	Nomenclature
77/BN	Multimeter

Materials Required

None

NOTE

Power Control Schematic (A1-F18AC-580-500, WP005 00) may be used as an aid while doing this procedure.

For component locator, refer to WP004 00.

Table 1. BIT Status Message Displays NOT RDY (Continued)

<p>Malfunction is caused by one of the items listed below:</p> <ul style="list-style-type: none"> Aircraft Wiring Mission Data Loader Mission Data Loader Mount No. 8 Circuit Breaker/Relay Panel Assembly 		
Procedure	No	Yes
<p>CAUTION</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connector 52P-C159G.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. <p>a. Do the substeps below:</p> <ol style="list-style-type: none"> (1) Remove electrical power (A1-F18AC-LMM-000). (2) Open door 10L (A1-F18AC-LMM-010). (3) On no. 8 circuit breaker/relay panel assembly, open circuit breaker 85CBC045, MEMORY UNIT. (4) Remove mission data loader mount (A1-F18AC-580-300, WP007 00). (5) On no. 8 circuit breaker/relay panel assembly (door 10L), close circuit breaker 85CBC045, MEMORY UNIT. (6) Apply electrical power (A1-F18AC-LMM-000). (7) Does 28vdc exist from 85P-K040 pin 14 to 85P-K040B pin 13 (ground)? <p>b. Do substeps below:</p> <ol style="list-style-type: none"> (1) Remove electrical power (A1-F18AC-LMM-000). (2) On no. 8 circuit breaker/relay panel assembly (door 10L), open circuit breaker 85CBC045, MEMORY UNIT. (3) Disconnect 52P-C159G from no. 8 circuit breaker/relay panel assembly. (4) Does continuity exist from: 85P-K040B pin 14 to 52P-C159G pin 72 85P-K040B pin 13 to aircraft ground? <p>c. Isolate defective aircraft wiring (A1-F18AC-580-000) and do step f.</p> <p>d. Isolate between no. 8 circuit breaker/relay panel assembly wiring and 85CBC045 (A1-F18AC-420-300, WP031 00) and do step f.</p>	b	e

Table 1. BIT Status Message Displays NOT RDY (Continued)

Procedure	No	Yes
e. Malfunction is caused by one of the items listed below: (1) Mission data loader (A1-F18AC-580-300, WP007 00). Do step f. (2) Mission data loader (A1-F18AC-580-300, WP007 00). Do step f.	-	-
f. If disconnected, removed, or opened during this procedure, make sure items listed below are connected, installed, or closed: (1) 85CBC045, MEMORY UNIT circuit breaker (2) 52P-C159G (3) 85P-K040B (4) Door 10L	-	-

Table 2. Mission Data Loader Avionic Mux Bus 4X/4Y Fail (Code 008)

Support Equipment Required	No	Yes
None		
Materials Required		
None		
Memory inspect data used in this procedure is provided in WP007 00.		
For component locator, refer to WP004 00.		
Malfunction is caused by aircraft wiring.		
Procedure	No	Yes
a. Do substeps below: (1) Using unit address 28, memory inspect address for ref code BDMUX1 (table 2, WP007 00). (2) On RDDI, does DATA readout display any of the below: XXX4XX XXX5XX XXX6XX XXX7XX?	c	b
b. Do substeps below: (1) On LDDI, set power switch to OFF. (2) Turn electrical power off (A1-F18AC-LMM-000).		

Table 2. Mission Data Loader Avionic Mux Bus 4X/4Y Fail (Code 008) (Continued)

Procedure	No	Yes
(3) Remove mission data loader mount (A1-F18AC-580-300, WP007 00). (4) Open door 13L (A1-F18AC-LMM-010). (5) Disconnect 83P-E001L from Digital Data Computer No. 1. (6) Isolate and repair defective aircraft wiring (A1-F18A()-WDM-000) from: 85P-K040A pin 9 to 83P-E001L pin 15 85P-K040A pin 10 to 83P-E001L pin 14 and do step d	-	-
c. Do substeps below: (1) On LDDI, set power switch to OFF. (2) Remove electrical power (A1-F18AC-LMM-000). (3) Remove mission data loader mount (A1-F18AC-580-300, WP007 00). (4) Open door 13L (A1-F18AC-LMM-010). (5) Disconnect 83P-E001L from Digital Data Computer No. 1. (6) Isolate and repair defective aircraft wiring (A1-F18A()-WDM-000) from: 85P-K040A pin 2 to 83P-E001L pin 19 85P-K040A pin 3 to 83P-E001L pin 20 and do step d	-	-
d. If disconnected, removed, or opened during this procedure, make sure items listed below are connected, installed, or closed: (1) Mission data loader mount (2) Door 13L (3) 83P-E001L	-	-